

HMD-M11

SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model
E Model*



HMD-M11 is the mini disc deck,
tuner and preamplifier section
in CMT-M11C.

U.S and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MDM-3C
Optical Pick-up Name	KMS-260A/J1N

SPECIFICATIONS

MiniDisc deck section

System	MiniDisc digital audio system
Disc	MiniDisc
Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$)
Laser output power	Less than 44.6 mW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.	
Laser diode properties	Material: GaAlAs
Revolutions (CLV)	Approx. 400 rpm to 900 rpm
Error correction	Advanced Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency	44.1 kHz
Modulation system	EFM (Eight-to-Fourteen Modulation)
Number of channels	2 stereo channels
Frequency response	20 to 20,000 Hz $\pm 0.5 \text{ dB}$
Signal-to-noise ratio	Over 92 dB (during playback)
Wow and flutter	Below measurable limit
Inputs	DIGITAL IN (CD OPTICAL IN): Square optical connector jack, impedance optical wave length 660 nm.

Tuner section

Tuning range	
US, CND model	FM: 87.5 – 108 MHz (100 kHz step) AM: 530 – 1,710 kHz (at 10 kHz interval)
AEP, UK model	FM: 87.5 – 108 MHz (50 kHz step) AM: 522 – 1,611 kHz
E, HK, SP, MY model	FM: 87.5 – 108 MHz (50 kHz step) AM: 531 – 1,602 kHz (at 9 kHz interval) 530 – 1,710 kHz (at 10 kHz interval)
Intermediate frequency	FM: 10.7 MHz AM: 450 kHz
Antenna terminals	FM: 75 ohm unbalanced AM: External antenna terminal
Timer	Quartz lock system
Timer setting	One-minute step
Sleep timer	10-minute step, max. 90 minutes

– Continued on next page –

MINI DISC DECK/TUNER/PREAMPLIFIER



SONY®

Preamplifier section

Inputs	TAPE IN jack: Stereo phone jacks, sensitivity 220 mV, impedance 47 kilohms
Outputs	OUTPUT jack: Stereo phone jacks, 1 V, 1 kilohm TAPE OUT jack: Stereo phone jacks, 1 V, 1 kilohm PHONES (headphones) jack: Stereo mini jack, accepts headphones of 8 ohms or more.

General

Power requirements	
US, CND model	120 V AC, 60 Hz
AEP, UK model	220 – 230 V AC, 50/60 Hz
E, HK, SP, MY model	120 V or 220 – 240 V AC, 50/60 Hz adjustable with voltage selector
Power consumption	
US, CND model	19 W
Except US, CND model	20 W
Dimensions	Approx. 142 × 125 × 256 mm (w/h/d) (5 ⁵ / ₈ × 5 × 10 inches) incl. projecting parts and controls
Mass	Approx. 3.3 kg (6 lb 10 oz)

Design and specifications are subject to change without notice.

• Abbreviation

CND	: Canadian
HK	: Hong Kong
MY	: Malaysia
SP	: Singapore

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suit-

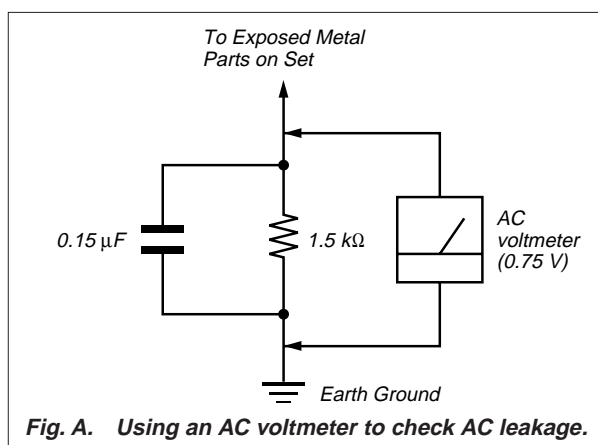


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

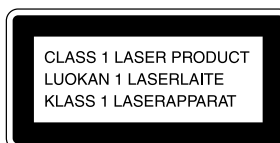
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.



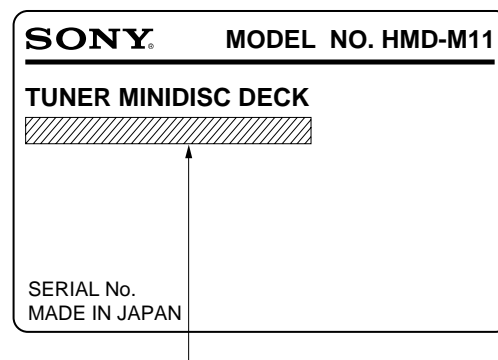
Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.

CAUTION	; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSÅFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING	; LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URÖPPPLAD.
ADVARSEL	; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNGÅ EKSPONERING FOR STRÅLEN.

MODEL IDENTIFICATION

– Specification Label –



US, Canadian model:

AC: 120 V 60 Hz 19 W

AEP, UK model:

AC: 220 – 230 V ~ 50/60 Hz 20 W

E, Hong Kong, Singapore, Malaysia model:

AC: 120 V/220 – 240 V ~ 50/60 Hz 20 W

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.

Discard used batteries according to the manufacturer's instructions.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Ekspløsjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type
anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens
instruksjoner.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som
rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SECTION 1 SERVICING NOTES

1-1. CHECK MODE OF FLUORESCENT INDICATOR TUBE, BUTTONS, AND LED'S

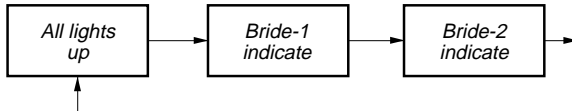
Setting the Check Mode:

This mode is activated if pressing **◀◀◀** button and **DISPLAY** button simultaneously with the power supply to the set in OFF (standby) status. When this mode started, the fluorescent indicator tube and LEDs are all turned on.

1-1-1. Check Mode of Fluorescent Indicator Tube

The display changes in three ways each time the **YES** button is pressed.

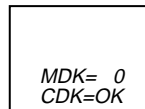
When **POWER** button is pressed, the set becomes ready for normal operation.



1-1-2. Check Mode of Buttons

In the fluorescent indicator tube check mode, press the **NO** button, and the buttons check mode is activated.

When this mode started, the display will be as shown below.

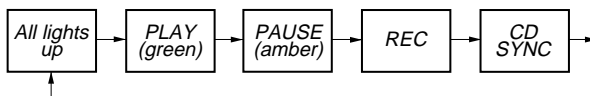


At this display, each time respective buttons (total 16 pcs.) are pressed, MDK values on the display are counted up, and "MDK=OK" is displayed when all buttons are pressed. If any button is pressed when "MDK=OK", the set becomes ready for normal operation.

1-1-3. Check Mode of LED's

In the fluorescent indicator tube check mode, each time

▶▶▶▶ button or **◀◀◀** button is pressed, each LED turns on as shown below.

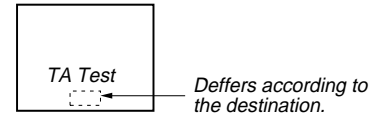


When **POWER** button is pressed, the set becomes ready for normal operation.

1-2. CHECK MODE OF AMPLIFIER SECTION

Setting the Check Mode:

This mode is activated if pressing **FUNCTION** button and **YES** button simultaneously with the power supply to the set in ON status. When this mode started, the display will be as shown below.



US, Canadian models: U/CA

AEP, UK models: AE4

E, Hong Kong, Singapore, Malaysia models: E

Table 1-1. Operation of Check Mode

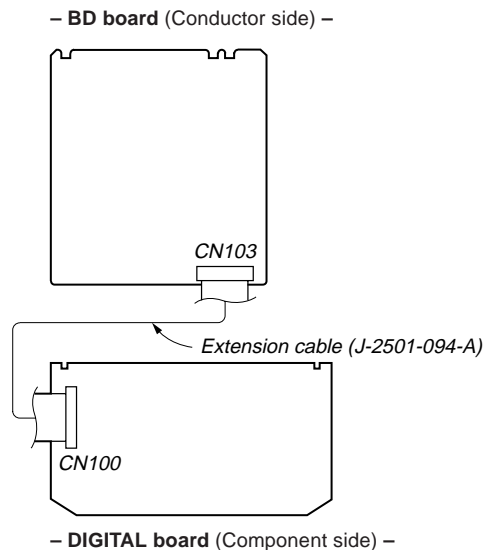
Button	Display	Operation
VOL +	Volume 0dB	Volume control maximum
VOL -	Volume --- dB	Volume control minimum
▶▶▶▶	10 RIGHT	Balance control (right side) maximum
◀◀◀	10 LEFT	Balance control (left side) maximum
■	Destination indication	Volume control maximum, balance control center

Releasing the Check Mode:

When **POWER** button is pressed, the set becomes ready for normal operation.

1-3. EXTENSION CABLE

In performing a repair of this set, etc., connect the CN103 on BD board with the CN100 on DIGITAL board using as extension cable (Parts No.: J-2501-094-A).



1-4. AGING MODE

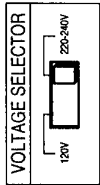
For the AGING MODE, refer to the CMT-M11C service manual (Parts No.: 9-960-794-11).

SECTION 2
GENERAL

5^{EN}

- 6** Set VOLTAGE SELECTOR to match your local power line voltage (except for North American model).

Tuner MD deck

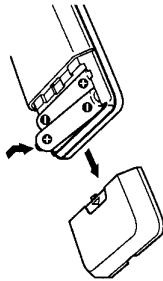


Right speaker



- 7** Connect the power.
Connect the AC power cord of the tuner MD deck to the wall outlet after you have made all the above connections.

Inserting two R6 (size AA) batteries into the remote



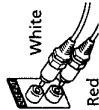
Tip
With normal use, the batteries should last for about six months. When the remote no longer operates the system, replace both batteries with new ones.

Note
If you do not use the remote for a long period of time, remove the batteries to avoid possible damage from battery leakage.

- 4** Connect the speakers.

- 1** Connect the right speaker to the tuner MD deck with the audio cord (supplied).

Connect firmly the white plug to the white (L) jack and the red plug to the red (R) jack.

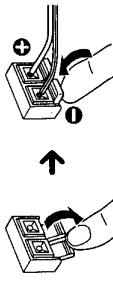


- 2** Connect the left speaker to the right speaker with the speaker cable (supplied). Be sure to keep the speaker cable away from the antennas.

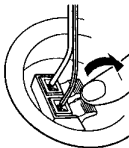
Gray cord to ● (red)

Black-lined cord to ● (black)

Right speaker



Left speaker



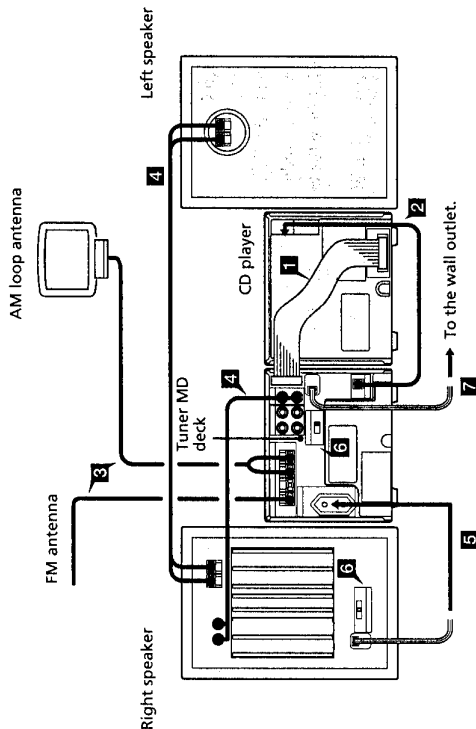
- 5** Connect the AC power cord of the right speaker.

Connect AC power cord of the right speaker to AC OUTLET on the rear panel of the tuner MD deck.

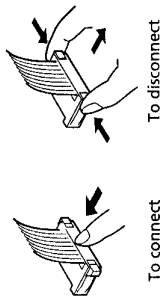
Getting Started

Step 1: Hooking up the system

Do the following procedures **1** to **7** to hook up your system using the supplied cords and accessories. To complete the setup, do steps 2 and 3 also.



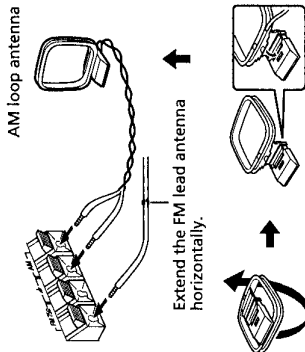
- 1** Connect the flat cord to the CD player until it clicks.



- 2** Connect the optical cable to the CD player.



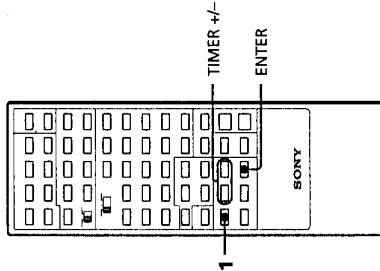
- 3** Connect the FM/AM antennas.
Set up the AM loop antenna, then connect it.



4^{EN}

Step 2: Setting the time

You must set the time beforehand to use the timer function.



- 4 Set the current minute by pressing **TIMER + or -** and press **ENTER**.
The clock starts working.

To correct the clock setting.
Repeat steps 1 through 4.

About the time indication

- The built-in clock shows the time in the display when you press power to turn off the power.
- The upper dot of the ":" in the time display flashes for the 0 to 29 seconds and the lower dot flashes for the 30 to 59 seconds.

- 1 Press **TIMER SET**.

- 2 Press **TIMER + or -** to display "CLOCK" and press **ENTER**.
The hour indication begins flashing.

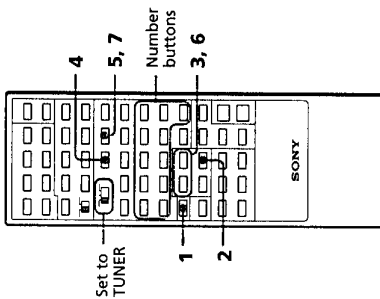


- 3 Set the current hour by pressing **TIMER + or -** and press **ENTER**.
The minute indication begins flashing.



Step 3: Presetting radio stations

You can preset up to 20 FM stations and 10 AM stations. Use the buttons on the remote to do this operations.



- 6 Press **TUNING + or -** and select the preset number you want.

- 7 Press **YES**.
The station is stored.

- 8 Repeat steps 1 through 7 to store other stations.

To tune in a station with a weak signal

Press **TUNING MODE** repeatedly until "MANUAL" appears in step 2, then press **TUNING + or -** to tune in the station.

To change the preset number

Start again from step 1.

To directly select preset numbers

You can quickly select the preset numbers by pressing the corresponding number buttons. Before operating it switch **MD/TUNER** to **TUNER**. When you select preset number over 11 press >10 first, then enter the corresponding digit.
Example: To select preset number 20, press >10, 2, and 10 in this order.

To change the AM tuning interval (Except for the North American and Middle Eastern models)

The AM tuning interval is factory-preset to 9 kHz (10 kHz in some areas). To change the AM tuning interval to 10kHz (or 9 kHz), press **BAND** repeatedly until "AM" appears first, then turn off the power. While holding down **YES**, turn the power back on.

When you change the interval, the AM preset stations will be erased. To reset the interval, repeat the same procedure.

Note

The preset stations are retained for a week even if you pull out the AC power cord or if a power failure occurs.

- 1 Press **BAND** repeatedly until the band you want appears in the display.
FM ↔ AM

- 2 Press **TUNING MODE** repeatedly until "AUTO" appears.

- 3 Press **TUNING + or -** to tune in the station you want to store.
The frequency indication changes and scanning stops when the system tunes in the station. "TUNED" and "STEREO" (for a stereo program) appear.

- 4 Press **EDIT/NO** until "Frq-Memory?" appears.

- 5 Press **YES**.
The preset number flashes in the display.

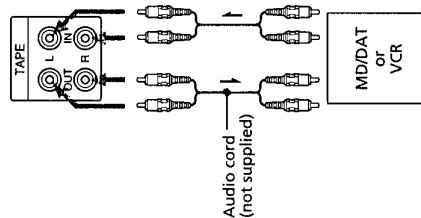
Connecting optional AV components and outdoor antennas

To enhance your system, you can connect optional components. Refer to the instructions of each component.

Connecting a DAT deck/VCR

You can record from a DAT deck or VCR in monaural sound.

Connect to the TAPE jack at the rear of the Tuner MD deck with an audio cable (not supplied). Make sure to match the color of the plugs and the connectors.



To listen to the sound

Press FUNCTION repeatedly until "TAPE" appears.

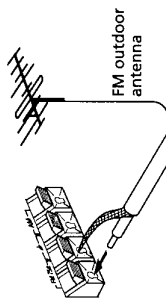
You can listen to the sound of VCR in stereo sound.

Connecting outdoor antennas

Connect the outdoor antenna to improve the reception.

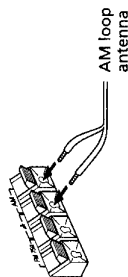
FM antenna

Connect the optional FM outdoor antenna. You can also use the TV antenna instead.



AM antenna

Connect a 6 to 15 meter (20 to 50 feet) insulated wire to the AM antenna terminal. Leave the supplied AM loop antenna connected.

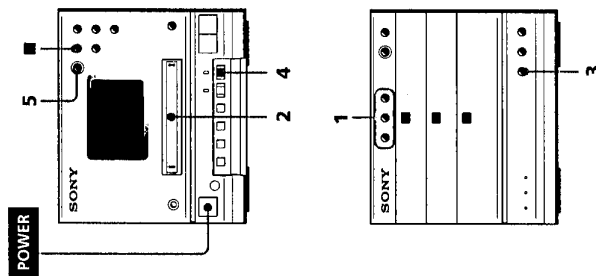


Important

If you connect an outdoor antenna, ground it against lightning. To prevent a gas explosion, do not connect the ground wire to a gas pipe.

Recording a CD — CD Synchro Recording

You can make a digital recording of a CD on an MD, marking track numbers in the same sequence as the original CD. The MD is labeled with the disc name (see page 18) on a brand-new recordable MD or the MD whose tracks are completely erased (see page 31). If you use a recorded MD, the MD deck automatically locates the end of the recording and starts recording from there.



1 Press **OPEN/CLOSE** and place a CD on the disc tray.



With the label side up. When you play a single CD, place it on the inner circle of the tray.

Press again to close the disc tray.

2 Insert a recordable MD.



With the label side up. With the arrow pointing toward the deck.

3 Press DISC SKIP repeatedly until the DISC1 - 3 indicator you want lights up green.

4 Press CD SYNC repeatedly until "NORMAL" appears.

The MD stands by for recording and the CD is in pause for playback.

5 Press **▶||** on the MD deck. Recording starts.

To stop recording

Press **■** on the MD deck.

While "TOC" lights up or is flashing

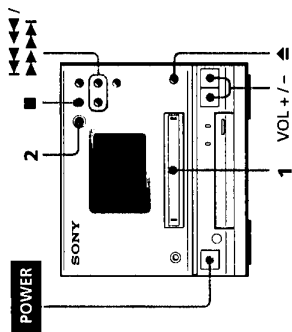
Do not move the deck or pull out the AC power cord to ensure the complete recording. The deck updates the Table of Contents (TOC) while "TOC" is flashing.

Tips

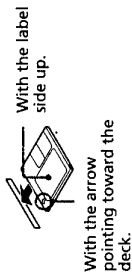
- You can record from a CD in the desired order (see page 27).
- You can record only the first track on each CD (Hit Parade, see page 28).
- You can edit the MD after recording (see page 30).

Playing an MD

You can play an MD just like a CD. Set the MD/TAPE switch on the remote to MD.



1 Insert an MD.



2 Press **▶||** (or **▶** for MD on the remote). Playback starts.

To	Do this
Stop play	Press ■ .
Pause	Press ▶ (or for MD on the remote). Press again to resume play.
Select a track	Press ▶▶▶▶▶▶ (to go forward) or ◀◀◀◀◀◀ (to go back) (▶▶ or ◀◀ for MD on the remote).
Find a point in a track	Press ▶▶ or ◀◀ for MD on the remote during play and release it at the desired point.
Remove the MD	Press ⏏ .
Adjust the volume	Press VOL + or -.

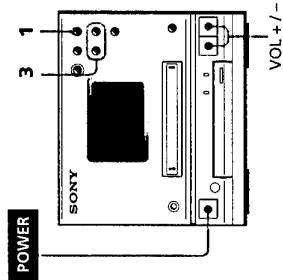
Tips

- You can start playing from the desired track. Before pressing **▶||** (or **▶** for MD on the remote) in step 2, press **▶▶▶▶▶▶** or **◀◀◀◀◀◀** (**▶▶** or **◀◀** for MD on the remote) until the desired track appears.
- Pressing **▶||** when the power is off automatically turns the power on and starts MD playback if there is an MD in the player (One Touch Play).
- You can switch from another source to the MD deck and start playing an MD just by pressing **▶||** (Automatic Source Selection).

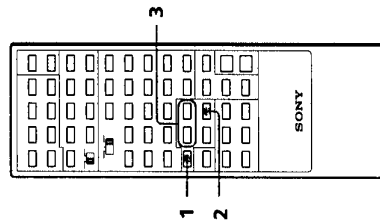
Listening to the radio

— Preset Tuning

Firstly preset radio stations in the tuner's memory (see page 7).



Basic Operations



1 Press BAND repeatedly until the band you want appears. Each time you press the button, the band changes as follows:

FM ↔ AM

2 Press TUNING MODE repeatedly until "PRESET" appears.

3 Press TUNING + or - to select the preset number you want. Press TUNING + for higher preset numbers and TUNING- for lower preset numbers.



To Do this

Turn off the radio Press POWER.

Adjust the volume Press VOL + or -.

To listen to non-preset radio stations

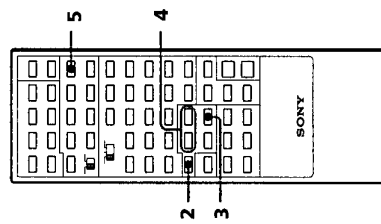
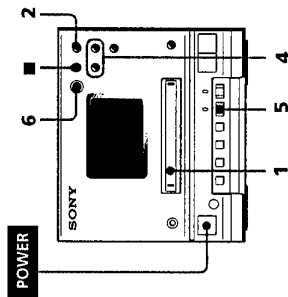
Press TUNING MODE repeatedly until "MANUAL" appears in step 2, then press TUNING + or - to tune in the desired station.

Tips

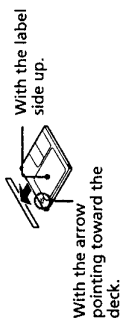
- Pressing BAND when the power is off automatically turns the power on and tunes to the last received station (One Touch Play).
- You can switch from another source to the tuner just by pressing BAND (Automatic Source Selection).
- To improve broadcast reception, reorient the supplied antennas.
- When an FM program is noisy, press STEREO/MONO on the remote so that "MONO" appears. There will be no stereo effect, but the reception will improve. Press the button again to restore the stereo effect.

Recording from the radio

You can record a radio program on an MD by calling up the preset station. If you use a recorded MD, the MD deck automatically locates the end of the recording and starts recording from there. Set the MD/TAPE switch on the remote to MD.



1 Insert a recordable MD.



2 Press BAND repeatedly until the band you want appears.

3 Press TUNING MODE repeatedly until "PRESET" appears.

4 Turn TUNING + or - to tune in the desired preset station.

Press TUNING + for higher preset numbers and TUNING - for lower preset numbers.

5 Press ● REC on the MD deck (or ● for MD on the remote).

The MD deck stands by for recording.

6 Press ►II on the MD deck (or II for MD on the remote).

Recording starts.

To stop recording

Press ■ for MD.

Tips

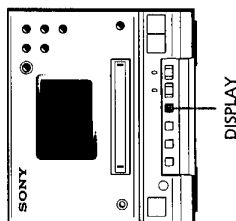
- To record non-preset stations, press TUNING MODE repeatedly until "MANUAL" appears in step 3, then press TUNING + or - to tune in the desired station.
- If noise is heard while recording an AM radio, move the AM loop antenna to reduce the noise.

13^{EN} 20^{EN}

The MD Deck

Using the display

You can check the remaining time and total playing time of an MD.



Checking the total track number, total playing time, remaining time of the MD, and disc name

Press DISPLAY during stop.

They are displayed during normal or shuffle play.

Each time you press the button, the display changes as follows:

→ Playing time and the track numbers on the current track.

Total track number



Total playing time



→ Remaining recordable time of the MD (recordable MDs only*1).

→ Disc name on the current MD*2.



*1 The remaining recordable time of the disc is not shown for premastered MDs.

*2 "No Name" appears if no disc name is stored.

To check the remaining time of the track and track name

Press DISPLAY during playback.

Each time you press the button, the display changes as follows:

→ Playing time and the track number on the current track.

→ Remaining time and the track numbers on the current track.

→ Track title on the current track*.



* If no track name is stored, "No Name" appears for a second, then playing time appears.

Tips

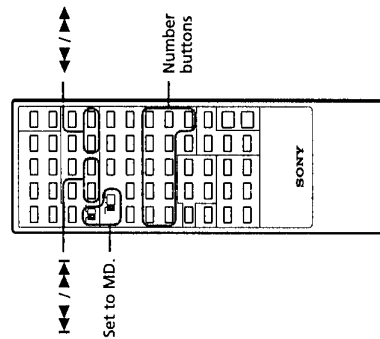
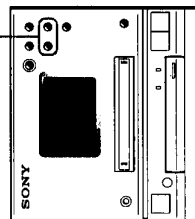
- You can check the track name at any time while playing an MD by pressing SCROLL. Since the display shows up to 7 characters at a time, press SCROLL to see the rest of the track name.
- Press SCROLL to pause scrolling and again to continue scrolling.
- To label a track or an MD, see page 35.

Note

"-m-s" appears when a playing time exceeds 100 minutes.

Locating a specific track or a point in a track

You can quickly locate any track or point on an MD.
Set the MD/TAPE switch and MD/CD/TUNER switch on the remote to MD.



To locate	Do this
The next or succeeding tracks (AMS)	During playback, press ▶▶▶▶▶ (or ▶▶▶▶▶ for MD on the remote) repeatedly.
The current or preceding tracks (AMS)	During playback, press ◀◀◀◀◀ (or ◀◀◀◀◀ for MD on the remote) repeatedly.
A specific track directly	Press number buttons to enter the track number.
A particular point in a track while monitoring the sound	During playback, keep pressing ▶▶▶▶▶ or ◀◀◀◀◀ (▶▶▶▶▶ or ◀◀◀◀◀ for MD on the remote) until you find the point.
A particular point in a track quickly by observing the display	During playback pause, keep pressing ▶▶▶▶▶ or ◀◀◀◀◀ (▶▶▶▶▶ or ◀◀◀◀◀ for MD on the remote) until you find the point.

To locate directly a track with a number over 11

Press >10 first, then enter the corresponding digit.

Examples:

- To play the track number 20
Press >10 once, then 2 and 10.
- To play the track number 100
Press >10 twice, then 1, 10, and 10.

Tip

If "OVER" appears while quickly locating a point in a track, the MD has reached the end. Press **◀◀◀◀◀** on the MD deck (or **◀◀◀◀◀** for MD on the remote).

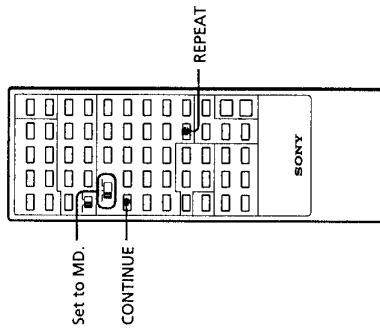
Notes

- If the MD reaches the end while you are locating a point during sound monitoring, the deck stops.
- Tracks that are only a few seconds long may not be searched properly.

Playing the MD tracks repeatedly

— Repeat Play

This function lets you repeat a single track or all the tracks on a disc.
Set the MD/CD/TUNER switch on the remote to MD.



Press REPEAT during play until "REPEAT 1" (for all the tracks) or "REPEAT 1" (for a single track) appears.

Repeat Play starts.

- You cannot repeat a single track during Shuffle Play and Program Play.

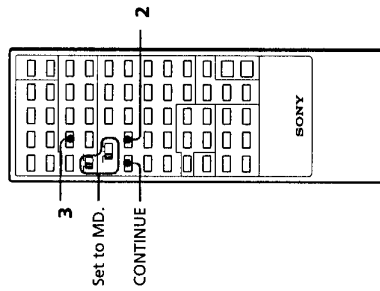
To cancel Repeat Play

Press REPEAT until "REPEAT" or "REPEAT 1" disappears.

Playing the MD tracks in random order

— Shuffle Play

You can play the tracks in random order.
Set the MD/TAPE switch and MD/CD/TUNER switch on the remote to MD.



1 Insert an MD.

2 Press SHUFFLE in stop mode.
"SHUFFLE" appears in the display.

3 Press **▶**.
"f3" appears, then all the tracks play in random order.

To cancel Shuffle Play

Press CONTINUE.

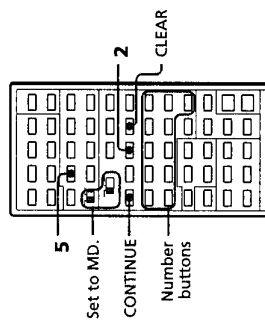
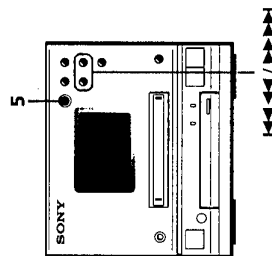
Tip

To skip the tracks, press **▶▶▶▶▶** for MD on the remote. You can not go back to the preceding track by pressing **◀◀◀◀◀**.

Programming the MD tracks

— Program Play

You can make a program up to 25 tracks in the order you want them to be played. Set the MD/TAPE switch and MD/CD/TUNER switch on the remote to MD.



- 1 Insert an MD.
- 2 Press PROGRAM in stop mode. "PGM" appears in the display.

- 3 Do either **a** or **b**.
 - a** Selecting tracks with the number buttons on the remote. Press the number buttons to enter the tracks you want to program in the order you want. To program a track with a number over 11, use the >10 button (see page 21).
 - b** If you've made a mistake. Press CLEAR, then press the correct number button.

- a** Selecting tracks while checking the total playing time

- 1 Press **1-4** or **5-9** or **10-12** or **13-15** for MD on the remote until the track number you want appears in the display. The total playing time including the selected track flashes in the display.

- 2 Press PROGRAM. The step number (number of the playing order) appears for about one second, then the total playing time lights up.

- 4 Repeat step 3 to program additional tracks.

- 5 Press **11** (or **12** for MD on the remote). All the tracks play in the order you selected.

To cancel the program play

Press CONTINUE.

To change the program

- | To | Do this |
|---------------------------------------|--|
| Add a track at the end of the program | Do steps 3 through 5 in stop mode. |
| Clear the entire program | Press 11 for MD in stop mode. |
| Clear the last program | Press CLEAR. Each time you press the button, the last track of the program is cleared. |

Tips

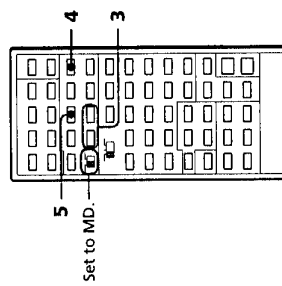
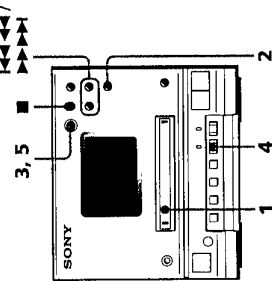
- The program you made remains after the Program Play has finished. To play the same program again, press **11** for MD.
- The step number appears in the display by pressing DISPLAY in stop mode.

Notes

- The program is cleared by pressing **11** on MD deck to eject the disc.
- "m-s" appears when the total program time exceeds 100 minutes.
- If you try to program more than 25 tracks, "MD FULL" is displayed.

Recording on an MD manually

The system automatically locates the last recorded portion and starts recording from that point. Set the MD/TAPE switch on the remote to MD.



- 1 Insert a recordable MD.

- 2 Press FUNCTION and select the source you want to record.

Source	Indication
CD	CD
Radio	TUNER
Tape or other AV components	TAPE

When you select CD, "D-IN" appears and the deck switches to digital recording.

Before you start recording

MDs (Mini Disc) let you digitally record and play back music with high quality sound that compares with the sound of CDs. Another feature of MDs is track making. The track making feature lets you quickly locate a specific point or easily edit the recorded tracks. However, depending on the source you record, the recording method varies. Also, the way the track numbers are recorded differs depending on the source.

When the source you record from is:

• This system's CD player

- The digital signal from the CD is recorded as it is (digital recording¹⁾).
- Track numbers are automatically marked as on the original CD.

• Other digital components

- (e.g., a DAT deck)
- The digital signal is converted to an analog signal once, then re-converted to a digital signal and recorded²⁾ (analog recording).
- A track number is marked at beginning of recording, but when you turn on the Level Sync function (see page 26), track numbers are automatically marked in sync with the level of the input signal.

• This unit's tuner and other analog components

- (e.g., a tape deck)
- The analog signal is converted to digital and recorded (analog recording).
- A track number is marked at the beginning of recording, but when you turn on the Level Sync function (see page 26), track numbers are automatically marked in sync with the level of the input signal.

¹⁾ For details on limitations of digital recording, see page 43.

²⁾ This signal conversion happens because this unit does not have digital input and output.

- 3** Select the point at which you want to start recording. To record on a blank MD or record from the last recorded position, skip this step.

To record over:

- From a specific position of the track: Play the MD and press **II** at the desired point. The system enters pause mode.
- From the beginning of the track: Press **▶▶▶▶▶** or **◀◀◀◀◀** (or press **▶▶▶▶▶** or **◀◀◀◀◀** on the remote) until the desired track number appears. If you want to record over from the beginning, select the track number 1 here.

- 4** Press **● REC** (or **●** for MD on the remote).

The deck is now ready for recording. To mark track numbers, see "Marking track numbers" on the next page. When recording from this unit's CD, the track numbers are automatically marked.

- 5** Press **▶II** on the MD deck (or **II** for MD on the remote).

Recording starts.

- 6** Start playing the source to be recorded.

To stop recording

Press **■** for MD.

If "Rec Level Over" appears

This means that a high-level signal was input during recording. If the sound is distorted, re-record the material. See "Troubleshooting" on page 44.

While "TOC" is flashing

Do not move the deck or pull out the power cord to ensure the complete recording. The deck updates the Table of Contents (TOC) while "TOC" is flashing.

Note

If you pause recording during CD recording, a track number is recorded at that point. Also, note that the tracks are recorded as a single track with a single track number when:

- a single track of the same CD is recorded repeatedly;
- two or more tracks with the same track number from different CDs are recorded continuously.

Playing back tracks just recorded

You can listen to the tracks that have just been recorded. Set the MD/TAPE switch on the remote to MD.

Press **▶II** (or **▶** for MD on the remote) immediately after stopping recording. Playback starts from the first track of the material just recorded.

To play the first track of the MD after recording

- Press **■** for MD again after stopping recording.
- Press **▶II** (or **▶** for MD on the remote). Playback starts from the first track of the MD.

Note

If you press **FUNCTION** while recording, the recording will be stopped.

Tip

You can check the recording time or remaining recordable time of the MD by pressing **DISPLAY** while recording.

Marking track numbers

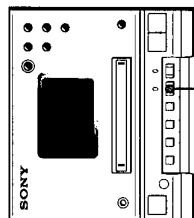
When you record from a CD (digital recording), the track numbers are automatically marked. In addition, you can mark track numbers:

- At any point while recording.
- Automatically while recording.

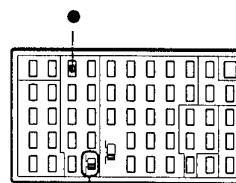
Marking track numbers at a specific point while recording

You can mark track numbers at any time while recording, regardless of the type of sound source.

Set the MD/TAPE switch on the remote to MD.



● REC

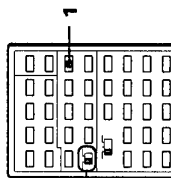
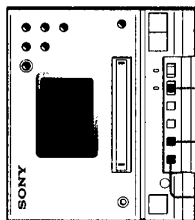


Set to MD.

Marking track numbers automatically while analog recording

The track numbers are automatically marked when the input signal continues to be under a certain level for more than two seconds and then returns to the previous level.

Set the MD/TAPE switch on the remote to MD.



Set to MD.

- 1** Press **● REC** (or **●** for MD on the remote).

The MD deck is ready for recording.

- 2** Press **EDIT/NO** repeatedly until "LevelSync?" appears.

- 3** Press **YES**.
"Sync ON?" appears.

- 4** Press **YES** again.
"LEVEL-SYNC" lights up.

- 5** Start recording.

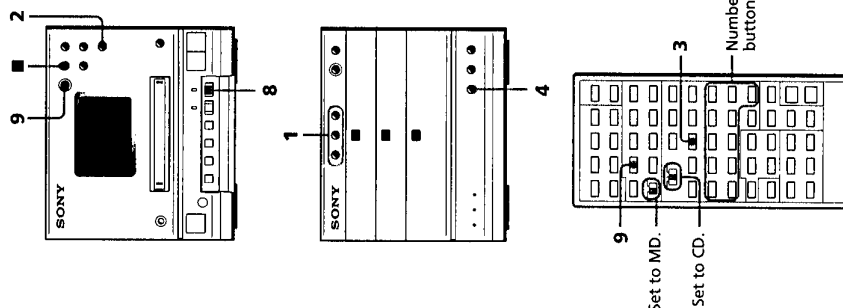
To cancel Auto Track Marking

Select "LevelSyncOff" in step 3. In this way, a track number is marked only at the beginning.

Recording CDs by specifying the track order

— Program Edit

You can record tracks from all the CDs in the order you want.
Set the MD/TAPE switch to MD and the MD/CD/TUNER switch to CD.



1 Press **△ OPEN / CLOSE** on the CD player to place a CD, then close the disc tray.

2 Press **FUNCTION** repeatedly until "CD" appears in the display.

3 Press **PROGRAM** in stop mode. "PGM" appears in the display.

4 Press **DISC SKIP** to select a CD.

5 Do either **Ⓐ** or **Ⓑ** to select track numbers.

Ⓐ Selecting tracks with the number buttons on the remote
Press the number buttons to enter the tracks you want to program in the order you want.

To program a track with a number over 11, use the >10 button (see page 7).

If you've made a mistake

Press **CLEAR**, then press the correct number button.

Ⓑ Selecting tracks while checking the total playing time

1 Press **⏮** or **⏭** (or **⏮** or **⏭** for CD on the remote) until the desired track appears in the display. The total playing time including the selected track flashes in the display.

2 Press **PROGRAM**.

The step number (number of the playing order) appears for about one second, then the total playing time lights up.

6 Repeat steps 4 and 5 to program additional tracks.

Skip step 4 if you select a track from the same disc.

7 Insert a recordable MD.

If you use a recorded MD, the MD deck automatically locates the end of the recording and starts recording from there.

Recording CDs by specifying the track order — Program Edit (continued)

8 Press **CD SYNC**.

The MD deck stands by for recording and the CD is in pause for playback.

9 Press **▶** on the MD deck (or **▶** for MD on the remote).
Recording starts.

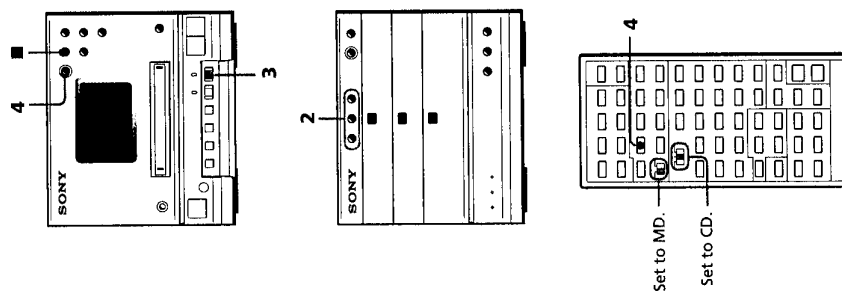
To cancel recording

Press **■** for MD.

Recording only the first track on each CD

— Hit Parade

You can record only the first tracks on each CD.
Set the MD/TAPE switch to MD.



continued

Recording from 3 CDs

- 1 Insert a recordable MD.
- 2 Press **OPEN/CLOSE** and place a CD on each disc tray.
- 3 Press CD SYNC repeatedly until "HIT PARADE" appears.
- 4 Press **▶** on the MD deck (or **▶** for MD on the remote).
Recording starts from the CD on the DISC1 tray.

To record from more than 4 CDs

You can exchange CDs while recording.
Set the MD/CD/TUNER switch on the remote to CD.

- 1 Start recording according to steps 1 through 4 above.
- 2 Press REPEAT to display "REPEAT" while recording.
- 3 Press **OPEN/CLOSE** and remove the CD that has finished recording while the next CD is being recorded.
- 4 Exchange the CDs, then press **OPEN/CLOSE** again.
- 5 Repeat steps 3 and 4 to continue recording from other CDs.
Recording continues in the following order:
DISC1 → 2 → 3 → 1 ...

To cancel Hit Parade recording

Press **■** for MD.

Erasing recordings

— Erase Function

The MD system lets you erase unwanted sound quickly and easily. The three options to erase recordings are:

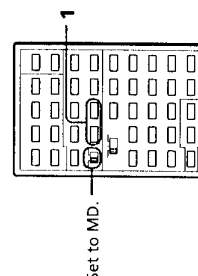
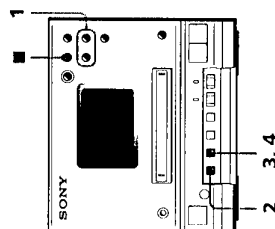
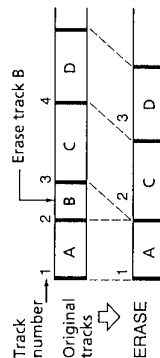
- Erasing a single track.
- Erasing all tracks.
- Erasing a portion of a track.

Erasing a single track

You can erase a track simply by specifying its track number. When you erase a track, the total number of tracks on the MD decreases by one and all the tracks following the erased one are renumbered.

Set the MD/TAPE switch on the remote to MD.

Example: Erasing track B.



- 1 Press **◀◀◀◀** or **▶▶▶▶** on the MD deck (**◀◀◀** or **▶▶▶** for MD on the remote) until the track number you want appears.

- 2 Press EDIT/NO until "Erase ?" appears.

- 3 Press YES.

"Erase ??" appears.

If you want to cancel the Erase Function at this time, press EDIT/NO or **■** for MD.

- 4 Press YES again to erase the track.
"Complete" appears for a few seconds and the selected track and title are erased. When you erase a track during playback, the track following the erased track begins playing.

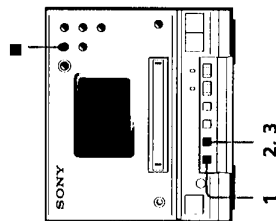
- 5 Repeat steps 1 through 3 to erase more tracks.

Note

"Erase??" appears when the track was recorded or edited on another deck and is record protected. To erase the track, press YES while "Erase??" is displayed.

Erasing all tracks

You can erase the disc name, all recorded tracks and their titles all at one time.



1 While the MD deck is stopped, press EDIT/NO until "All Erase?" appears.

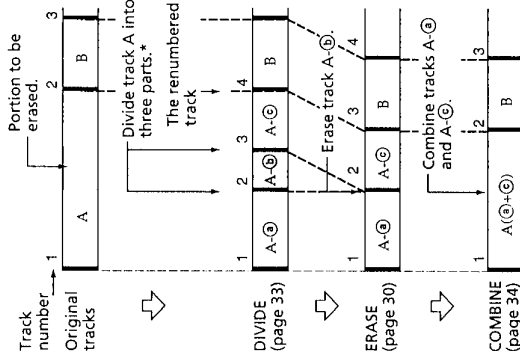
2 Press YES.
"All Erase?" appears.
To cancel the Erase Function at this time, press EDIT/NO or ■ for MD.

3 Press YES again.
"Complete" appears for a few seconds and all recorded tracks and their titles are erased.

Erasing a portion of a track

By using the Divide (see page 33), Erase (see page 30), and Combine (see page 34) Functions, you can erase specific portions of a track.

Example: Erasing a portion of track A.



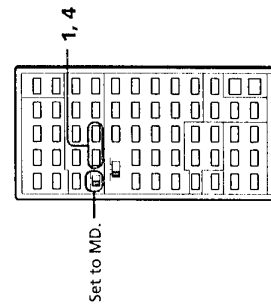
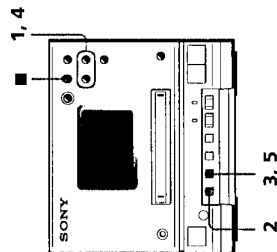
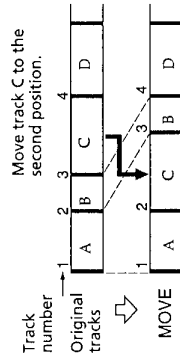
* The tracks are renumbered.

Moving recorded tracks

— Move Function

By using the Move Function, you can change the order of any track on the disc. When you move tracks, the tracks are automatically renumbered.
Set the MD/TAPE switch on the remote to MD.

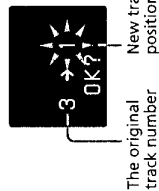
Example: Moving track C to position 2.



1 Press ◀◀◀ or ▶▶▶ on the MD deck (◀◀◀ or ▶▶▶ for MD on the remote) until the track number you want to move appears.

2 Press EDIT/NO until "Move?" appears.

3 Press YES.



4 Press ◀◀◀ or ▶▶▶ on the MD deck (◀◀◀ or ▶▶▶ for MD on the remote) until the new track position appears.

To cancel the Move Function at this time, press EDIT/NO or ■ for MD.

5 Press YES.

"Complete" appears for a few seconds. If you move the track while playing, the moved track start playing.

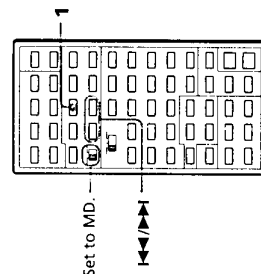
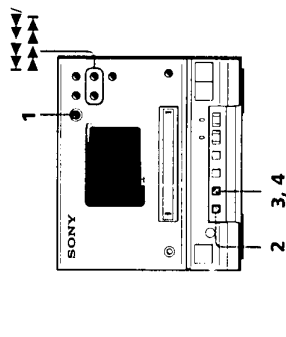
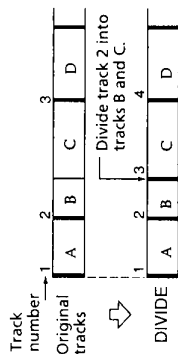
Dividing recorded tracks

— Divide Function

You can use this function to add track numbers to multiple tracks that are recorded as one track. This function also lets you mark track numbers after the recording ends. The total number of tracks increases by one and all the tracks following the divided ones are renumbered.

Set the MD/TAPE switch on the remote to MD.

Example: Dividing track 2 into tracks B and C.



1 While playing the MD, press **▶||** on the MD (or **||** for MD on the remote) at the point where you want to divide.

The deck pauses.

2 Press EDIT/NO until "Divide?" appears.

3 Press YES.

"Rehearsal" and "Position ok?" appear alternately and the portion to be divided is played repeatedly.



• To shift the position to be divided:

1 Press EDIT/NO.

2 While monitoring the sound, press **◀◀◀** or **▶▶▶** on the MD deck (or **◀◀◀** or **▶▶▶** for MD on the remote) to the starting point to be divided.

You can check the display and shift the point between -128 and +127 (±1 is about 0.06 seconds).

To cancel the divide function at this time, press **■** for MD.

4 Press YES again when you find the point to be divided.

"Complete" appears for a few seconds and the newly created track begins playing. The new track will have no track title even if the original track was labelled.

Tip

You can also divide tracks while recording. Press **● REC** at the desired point.

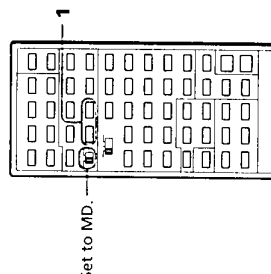
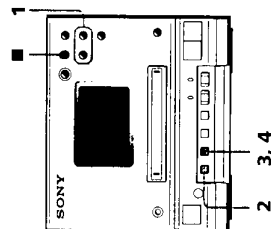
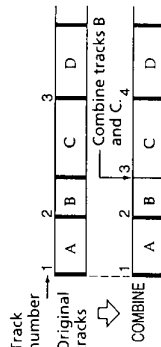
Combining recorded tracks

— Combine Function

This function lets you put several tracks or several independently recorded portions into a single track. The total number of tracks decrease by one and all the tracks following the combined ones are renumbered.

Set the MD/TAPE switch and MD/CD/TUNER switch on the remote to MD.

Example: Combining tracks B and C.



1 Press **◀◀◀** or **▶▶▶** on the MD deck (or **◀◀◀** or **▶▶▶** for MD on the remote) until the second track of the two to be combined appears.

For example, to combine tracks 3 and 4, select track 4.

2 Press EDIT/NO until "Combine?" appears.

3 Press YES.

"Rehearsal" and "Track ok?" appear alternately and the portion where the two tracks will join (i.e., the end of the first track and the beginning of the second track) is played repeatedly.

If you want to cancel the combine function at this time, press EDIT/NO or **■** for MD.

4 Press YES again when you find the portion.

"Complete" appears for a few seconds and the tracks are combined.

If both of the combined tracks have track titles, the title of the second track is erased.

Note

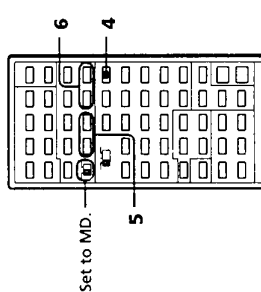
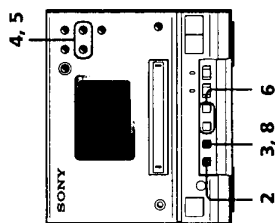
If "Sorry" appears, the tracks cannot be combined. This happens when you've edited the same track too many times. This is due to a technical limitation of the MD system and is not a mechanical error.

Labeling an MD

You can create titles (names) for your recorded MDs and tracks. You can use up to 1700 characters each for a disc. Set the MD/TAPE switch on the remote to MD.

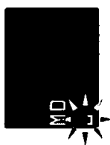
Note

When "SHUFFLE" or "PCM" appears in the display, press CONTINUE repeatedly until the indication disappears.



- 1 To label a disc, press ■ and stop playing the disc.
To label a track, press ►►►► on the MD deck (or ►►►► for MD on the remote) until the desired track number appears.
- 2 Press EDIT/NO until "Name in ?" appears.

- 3 Press YES.
The cursor starts flashing.



- 4 Press ◀◀◀◀ and ►►►► on the MD deck at the same time (or CHARACTER on the remote) repeatedly until the desired type of character appears.
Each time you press the button, the display changes as follows:

A (Upper cases) → a (Lower cases) → 0 (Numbers) → ! (Symbols)* → _ (Space) → A...

*You can use the following symbols.

! " # \$ % & ' () * + , - . / : ; < = > ? @ _ ` ~ (Space)

- 5 Press ◀◀◀◀ and ►►►► on the MD deck (◀◀◀◀ or ►►►► on the remote) until the character you want appears.
The selected character flashes. To enter a blank space, press CURSOR → (or ►►►► for MD on the remote) while the cursor is flashing.



- 6 Press CURSOR → (or ►►►► for MD on the remote) to enter the character.
The cursor shifts rightward and waits for the input of the next character.



Labeling an MD (continued)

- 7 Repeat steps 4 through 6 to complete the entire title.
If you made a mistake, press CURSOR ← or → (◀◀◀◀ or ►►►► for MD on the remote) until the character you want to change flashes, then repeat steps 4 to 6. To erase the character, press EDIT/NO while the character is flashing.

- 8 Press YES to complete the labeling procedure.
The titles you entered appear sequentially.

To cancel labeling

Press ■ for MD.

To check the names

To check the disc titles, press SCROLL while play is being stopped. To check the track titles, press SCROLL while in play. The titles are displayed scrolling in the display. To stop scrolling, press SCROLL. Press the button again to start scrolling.

To erase all names

- 1 Press EDIT/NO until "Name Erase ?" appears.
 - 2 Press YES.
 - 3 "Name Erase??" appears. To cancel the erasing, press ■ here.
- All the track titles and track names are erased.

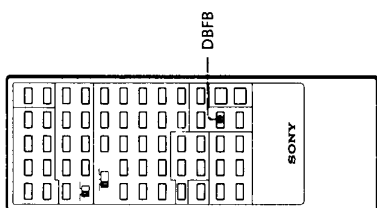
Notes

- You can label a track title while playing, but you must complete the labeling before the track ends.
- You cannot label while recording onto an MD.

Sound Adjustment Reinforcing Bass

— DBFB

DBFB (Dynamic Bass Feedback) feature intensifies low frequency sound for richer bass reproduction.



Press DBFB.

Each time you press the button, the display changes as follows:

→ DBFB1 → DBFB2 → OFF

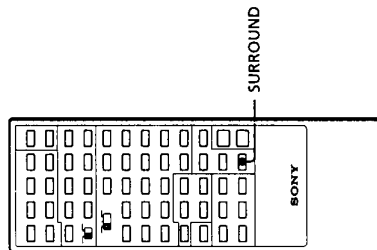
"DBFB2" reinforces the bass more than "DBFB1".

Note

When the DBFB and Surround features are set to OFF, you can enjoy almost the same sound as the CD source (Source Direct Feature).

Listening with the surround feature

With this feature you can create the atmosphere of a movie theater or concert hall.



Press SURROUND.

Each time you press the button, the display changes as follows:

→ SURR1 → SURR2 → OFF

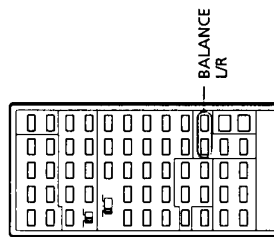
"SURR2" effects the surround more than "SURR1".

Note

When the Surround and DBFB features are set to OFF, you can enjoy almost the same sound as the CD source (Source Direct Feature).

Adjusting the balance of the speakers

You can adjust the balance of the sound from the speakers to correct the stereo imaging, when the speaker position is not symmetrical.



Press BALANCE L or R.

Press BALANCE R to increase the relative strength of the right speaker, and press BALANCE L to increase the relative strength of the left speaker.

Each time you press this button, the display changes as follows:

10 LEFT → 9 LEFT → → 1 LEFT → CENTER → 1 RIGHT → 2 RIGHT → → 10 RIGHT



Changing the display of the volume

You can change to one of the volume indication as follows: "dB (decibel)" or numbers.

- 1 Press POWER to turn off the system. The time indication appears.
- 2 Keep pressing VOL + or - on the MD deck and press POWER. The system turns on, and the volume indication has changed.

To listen through the headphones

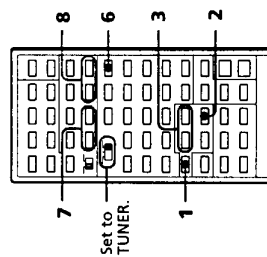
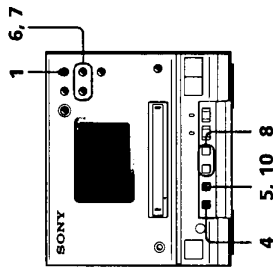
Connect the headphones to the PHONES jack on the MD deck.

Other Features

Labeling the preset stations

— Station Name

You can put a name of up to 10 characters (Station Name) to a preset station. The Station Name appears when you tune in the station. Set the MD/CD/TUNER switch on the remote to TUNER.



- 1 Press BAND repeatedly until the band you want appears.

- 2 Press TUNING MODE repeatedly until "PRESET" appears.

- 3 Press TUNING + or - until the preset number of the station you want to label appears.

- 4 Press EDIT/NO until "Name in ?" appears.

- 5 Press YES. The cursor starts flashing.



- 6 Press ◀◀◀ and ▶▶▶ on the MD deck at the same time (or CHARACTER on the remote) repeatedly until the desired sort of character appears. Each time you press the button, the display changes as follows:

A (Upper cases) → a (Lower cases) → 0 (Numbers) → ! (Symbols)* → _ (Space) → A...

*You can use the following symbols.

! " # \$ % & ' () * + , - . / : ; < = > ? @ _ ' _ (Space)

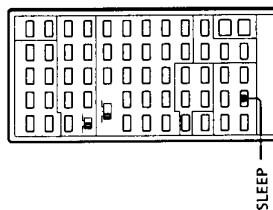
- 7 Press ◀◀◀ or ▶▶▶ (◀◀◀ or ▶▶▶ for MD on the remote) until the desired character appears. To enter a blank space, press CURSOR → (or ▶▶ for MD on the remote) while the cursor is flashing.



Falling asleep to music

— Sleep Timer

You can let the system turn off at a preset time, so you can sleep to the music. You can preset the time to be turned off by 10 minutes. Make sure you have set the clock (see page 6).



- 8 Press CURSOR → (or ►►) for MD on the remote) to enter the selected character. The cursor shifts rightward and starts flashing.



- 9 Repeat steps 6 through 8 to complete the name. If you made a mistake, press CURSOR ← or → (◀◀ or ►►) for MD on the remote) until the character you want to change flashes, then repeat steps 6 through 8.

- 10 Press YES.

To cancel labeling

Press ■ on the MD deck.

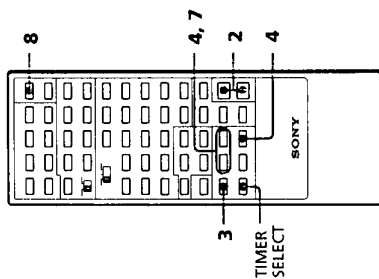
To erase the name

Repeat steps 1 to 5, then press EDIT/NO repeatedly until all the letters are erased.

Waking up to music

— Daily Timer

You can wake up to music at a preset time. The preset timer activates at the same time every day. Make sure you have set the clock (see page 6).



- 1 Prepare the music source you want to play.

- CD: Place a CD. To start from a specific track, make a program (see page 16).
- MD: Insert an MD.
- Radio: Tune in a station (see page 12).

- 2 Press VOL + or – to adjust the sound volume.

- 3 Press TIMER SET.

- 4 Press TIMER + or – until "DAILY" appears, and press ENTER. The hour indication starts flashing.



- 5 Set the time to start play. Press TIMER + or – to set the hour, then press ENTER. The minute indication starts flashing.



Press TIMER + or – to set the minute, then press ENTER. The hour indication flashes again.

- 6 Set the time to stop play following the above procedure. A sound source flashes.

- 7 Press TIMER + or – until the music source you want appears, then press ENTER.

The indications change as follows:

CD PLAY ↔ TUNER ↔ MD PLAY
The start time, followed by the stop time, the music source and volume appear, then the original display appears.

- 8 Press POWER to turn off the power.

To check the setting

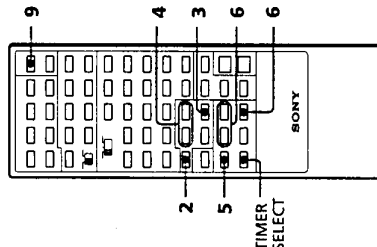
Press TIMER SELECT repeatedly until "DAILY TIMER" appears. The start time, followed by the stop time, the music source and volume appears then the original display appears. To change the setting, start again from step 1.

To cancel the timer operation

Press TIMER SELECT repeatedly until "TIMER OFF" appears.

Timer-recording radio programs

To timer-record, you must preset the radio station (see page 7) and set the clock (see page 6) beforehand. The timer setting will be released after the radio program is recorded. The MD is automatically labelled with the station name, the start time and the stop time of the recording if the station is labelled (see page 38) beforehand.



- 1** Insert a recordable MD in the MD deck.
- 2** Press BAND until the band you want appears.
- 3** Press TUNING MODE until "PRESET" appears.
- 4** Press TUNING + or - to tune in the preset station.
- 5** Press TIMER SET.
- 6** Press TIMER + or - until "REC" appears, then press ENTER.
The hour indication starts flashing.

- 7** Set the time you want to start recording.
Press TIMER + or - to set the hour, and press ENTER.
The minute indication flashes.
Set the minute in the same way, and press ENTER.
The hour indication for the turn-off time flashes.

- 8** Set the time you want to stop recording following the above procedure.

- 9** Press POWER to turn off the power.

To check the setting

Press TIMER SELECT repeatedly until "REC" appears. The start time, followed by the stop time and the preset number appears, then the original display appears. To change the setting, start again from step 1.

To cancel the timer operation

Press TIMER SELECT repeatedly until "TIMER OFF" appears.

To change the setting

Repeat steps 1 through 9.

Notes

- If the recordable time for the MD comes to the end while timer recording, the recording will stop immediately, and the deck will stop.
- The volume is reduced to minimum during recording.

System limitations of MDs

The recording system in your MD deck has limitations described below. Note, however, that these limitations are due to the inherent nature of the MD recording system itself and not to mechanical causes.

"DISC FULL" lights up before the MD has reached the maximum recording time (60 or 74 minutes)

When 255 tracks have been recorded on the MD, "DISC FULL" lights up regardless of the total recorded time. More than 255 tracks cannot be recorded on the MD. To continue recording, erase unnecessary tracks or use another recordable MD.

"DISC FULL" lights up before the maximum number of tracks (255) is reached

Fluctuations in emphasis within tracks are sometimes interpreted as track intervals, increasing the track count and causing "DISC FULL" to light up.

The remaining recording time does not increase even after erasing numerous short tracks

Tracks shorter than 12 seconds long are not counted, so erasing them may not increase the recording time.

Some tracks cannot be combined with others

Track combination may become impossible when tracks are shorter than 12 seconds long.

The total recorded time and the remaining time on the MD may not reach the maximum recording time (60 or 74 minutes)

Recording is done in minimum units of 2 seconds each, no matter how short the material. The contents recorded may thus be shorter than the maximum recording capacity. Disc space may also be further reduced by scratches.

The sound may drop-out while searching the edited tracks

Tracks created through editing may exhibit sound dropout during searching because high-speed playback takes time to search for the position on the disc when the tracks are scattered on the disc.

Track numbers cannot be marked properly

- When recording a CD through a digital connection, extra track numbers may be marked.
- When "LEVEL-SYNC" (page 26) is displayed during analog recording, the track numbers may not be marked at the beginning of the track:
 - if the input signal is below a certain fixed level for less than two seconds
 - if the input signal is below a certain fixed level for more than two seconds in the middle of the track.

Guide to the Serial Copy Management System

Management System

Digital audio components, such as CDs, MDs, and DATs let you copy music easily with high quality, for these digital products process music as a digital signal.

To protect the copyrighted music programs, this unit uses the Serial Copy Management System that allows you to make only a single copy of a recorded digital source through digital-to-digital connections.

You can make only a first generation copy* through a digital-to-digital connection.

For example:

- 1** You can make a copy of a commercially available digital sound program (e.g., a CD and an MD), but you cannot make a second copy from the first-generation copy.

- 2** You can make a copy of a digital signal from a digitally recorded analog sound program (e.g., an analog record and a music cassette tape) or from a digital satellite broadcast program, but you cannot make a second copy.

- A first-generation copy means a digital recording of a digital signal made on digital audio equipment. For example, if you record from this unit's CD player to this MD deck, you'd make a first-generation copy.

Notes

- This copy management system doesn't apply when you make a recording through analog-to-analog connections.
- To make a digital recording of a digital satellite broadcast program, whose sampling frequency is 32 kHz or 48 kHz, you need an MD deck or a DAT deck that supports these frequencies. You can also make a second-generation copy.

MD messages

One of the following messages may appear or flash in the display window during MD operation.

Auto cut

The MD deck is pausing the recording because silence continued for 30 seconds or more during digital recording.

Blank Disc

The inserted recordable MD is brand new or all tracks on the MD have been erased.

Cannot Copy

You cannot make a digital recording (See "Guide to the Serial Copy Management System" on page 43).

Cannot Edit

You tried to edit in Program or Shuffle Play mode.

Cannot Rec

You tried to record on a premastered MD.

Din Unlock

The digital signal input was interrupted during recording. Connect the optical cable securely (see page 4).

Disc Error

The inserted MD is damaged or does not contain a TOC.

Disc Full

There is no time remaining on the disc (See "System Limitations of MDs" on page 43).

Impossible

You tried to combine from the first track on an MD, which is not possible.

MD Protected

The inserted MD is protected against erasure.

Name Full

There is no more space to store track or disc titles.

NO DISC

There is no MD in the deck.

No Track

The inserted MD has a disc title but no tracks.

PUSH STOP!

You try to change the play mode during playing (or playing pause).

Rec Level Over

A high-level signal was input during analog recording with TAPE input jack (see "Rec Level Over" appears during recording" on page 44).

Retry

The MD deck is redoing the recording because of vibrations or disc scratches encountered during recording.

Retry Error

Due to vibration affecting the deck or scratches on the MD, several recording attempts were made but with no success.

Smart Space

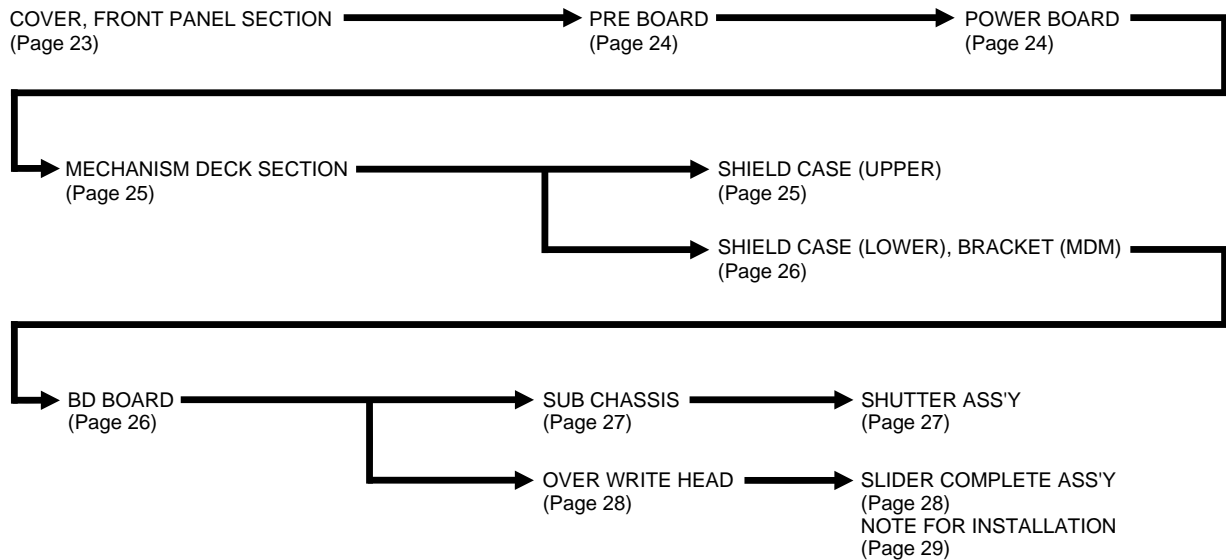
The signal was input again after silence continued for 3 to 30 seconds or less during digital recording.

Sorry

You tried to combine tracks that cannot be combined.

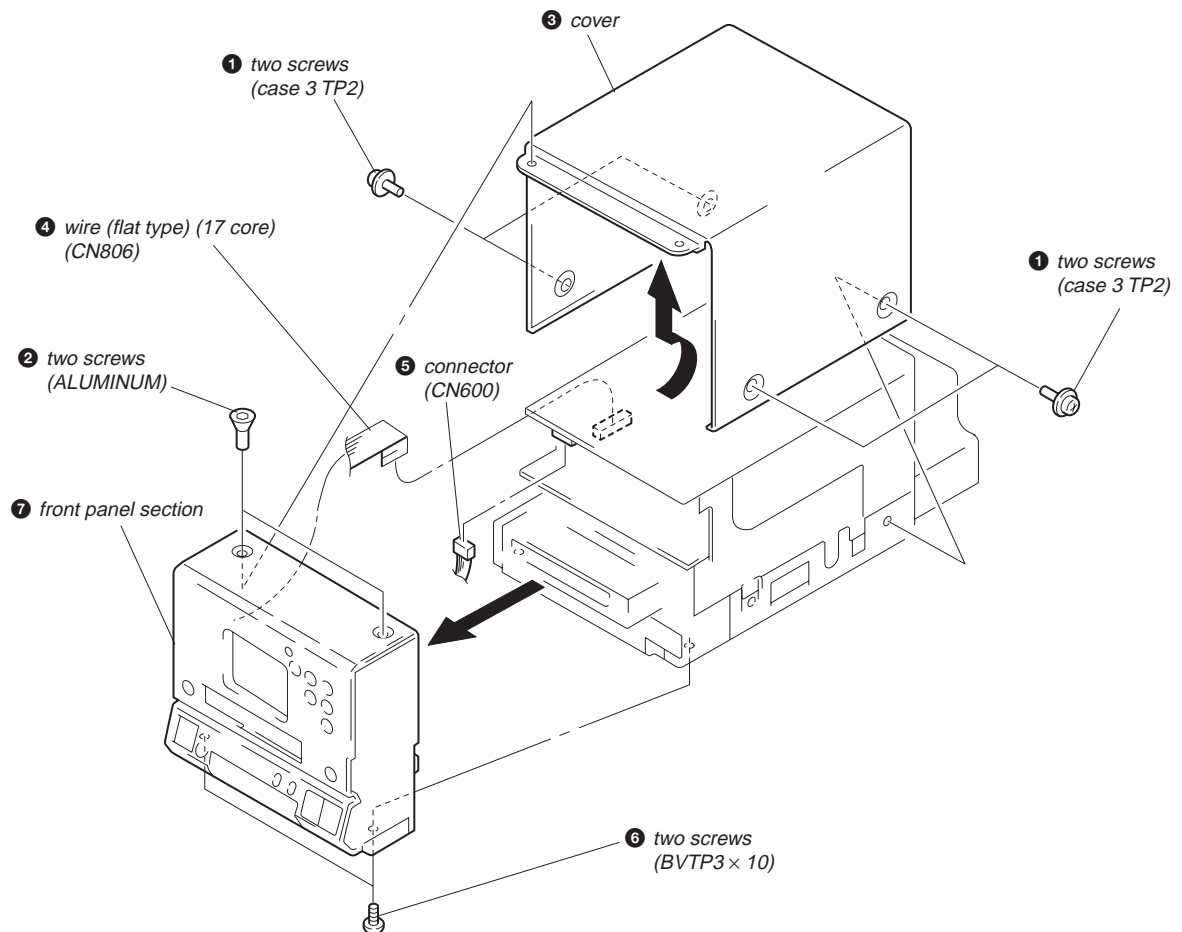
SECTION 3 DISASSEMBLY

- This set can be disassembled in the order shown below.

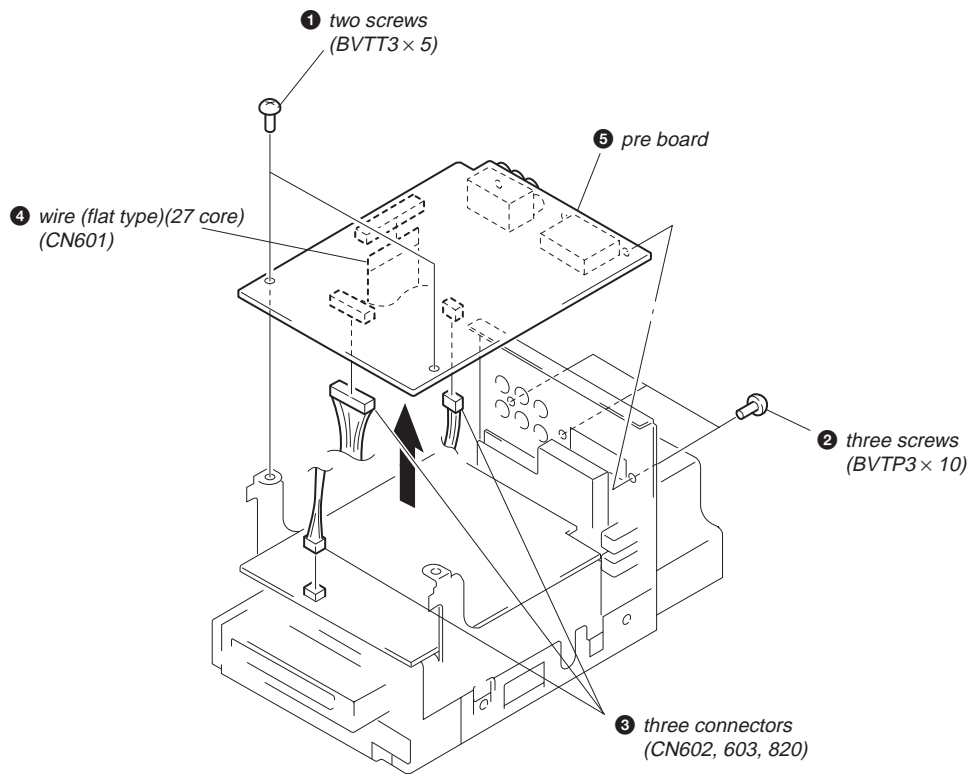


Note: Follow the disassembly procedure in the numerical order given.

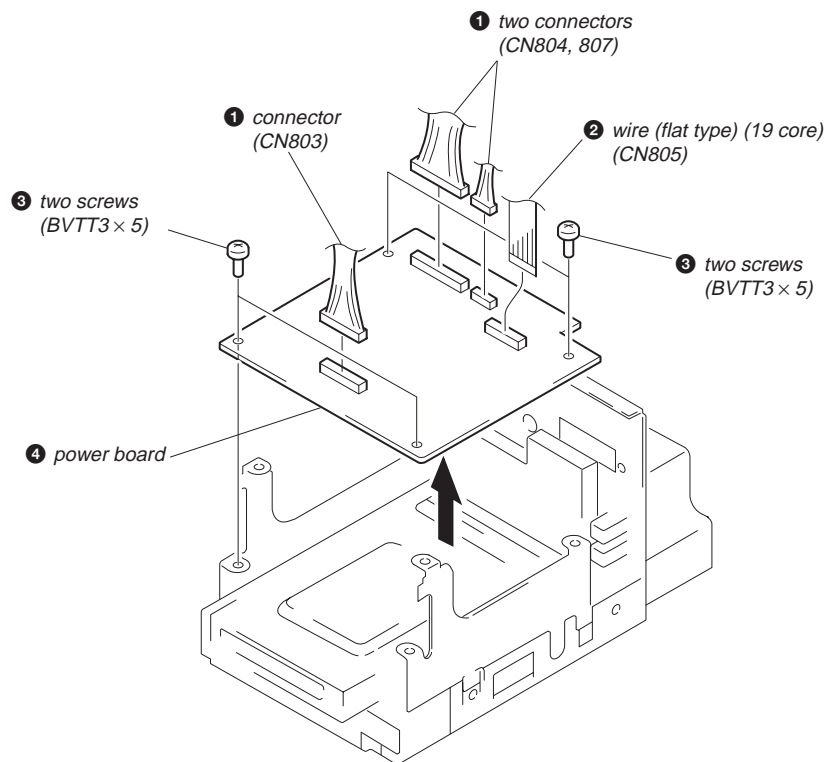
COVER, FRONT, PANEL SECTION



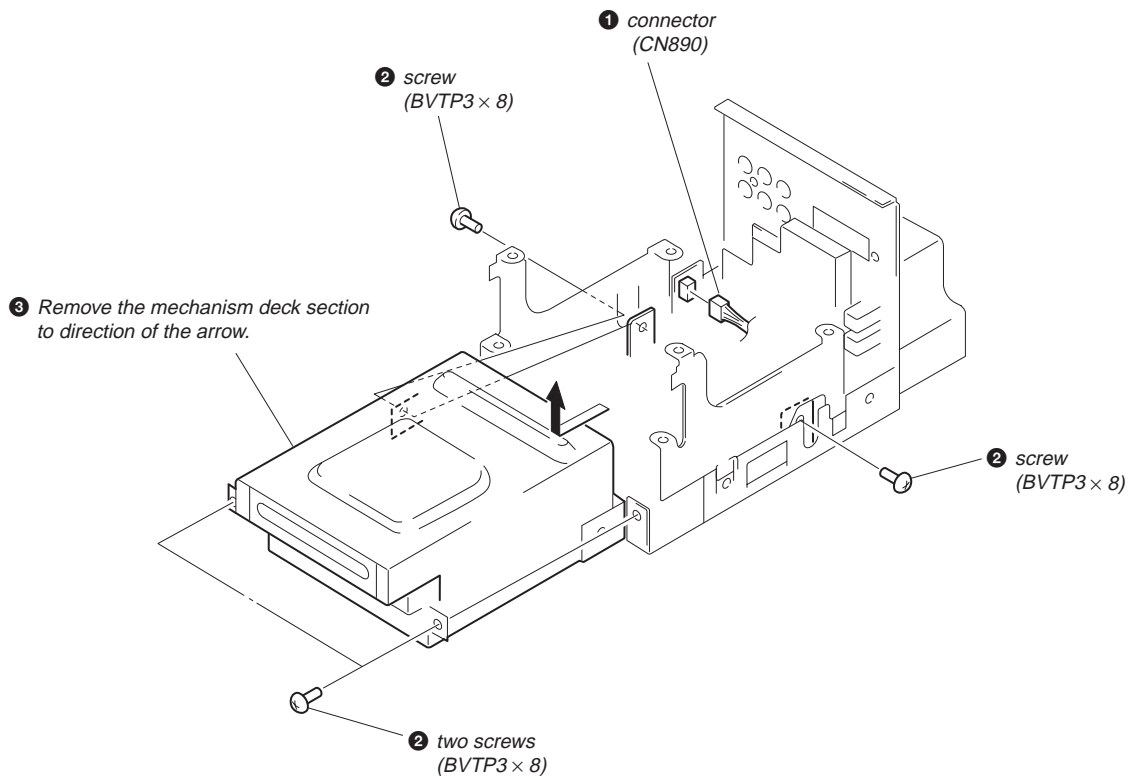
PRE BOARD



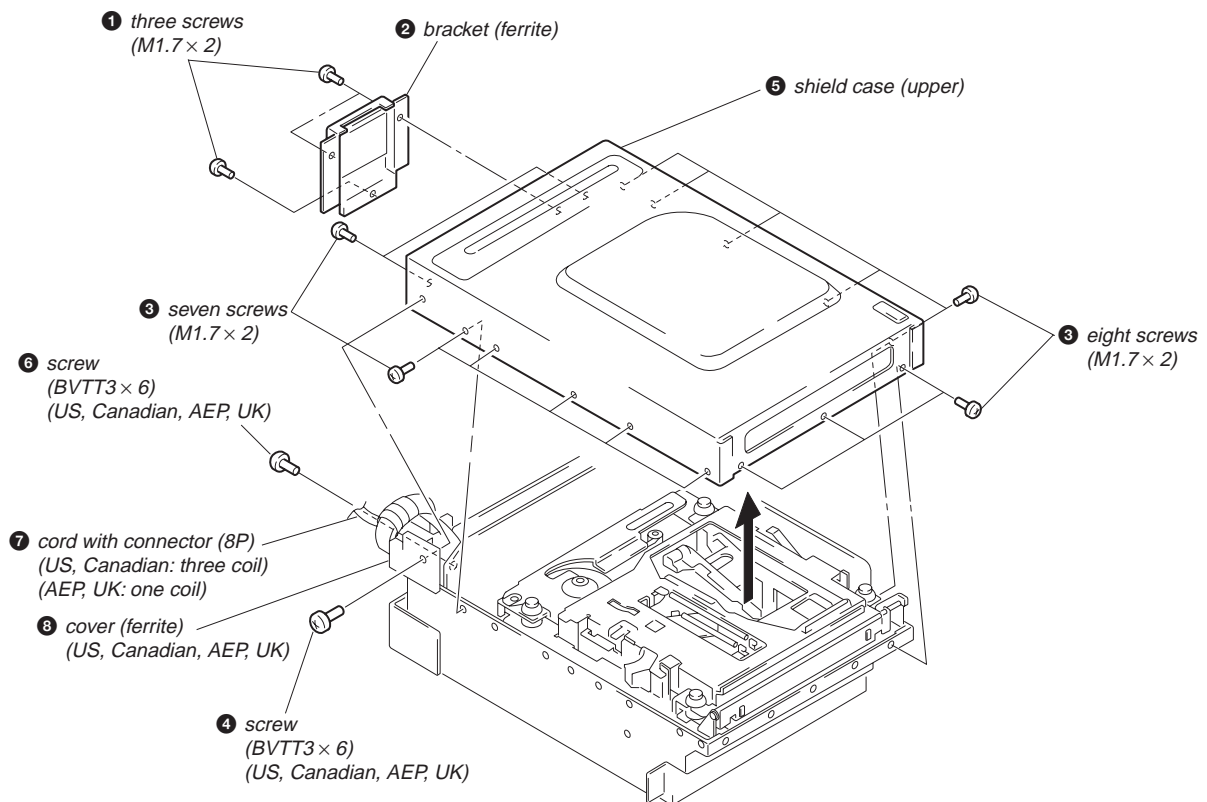
POWER BOARD



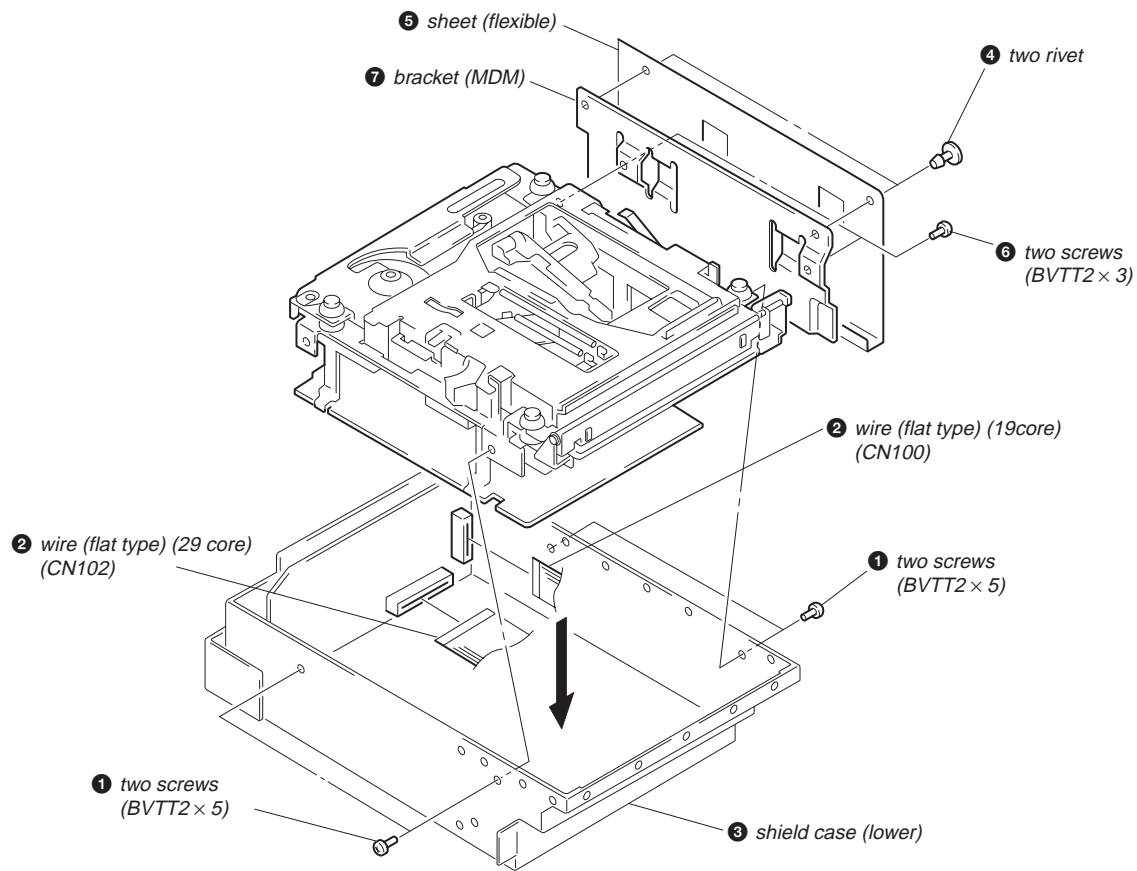
MECHANISM DECK SECTION (MDM-3C)



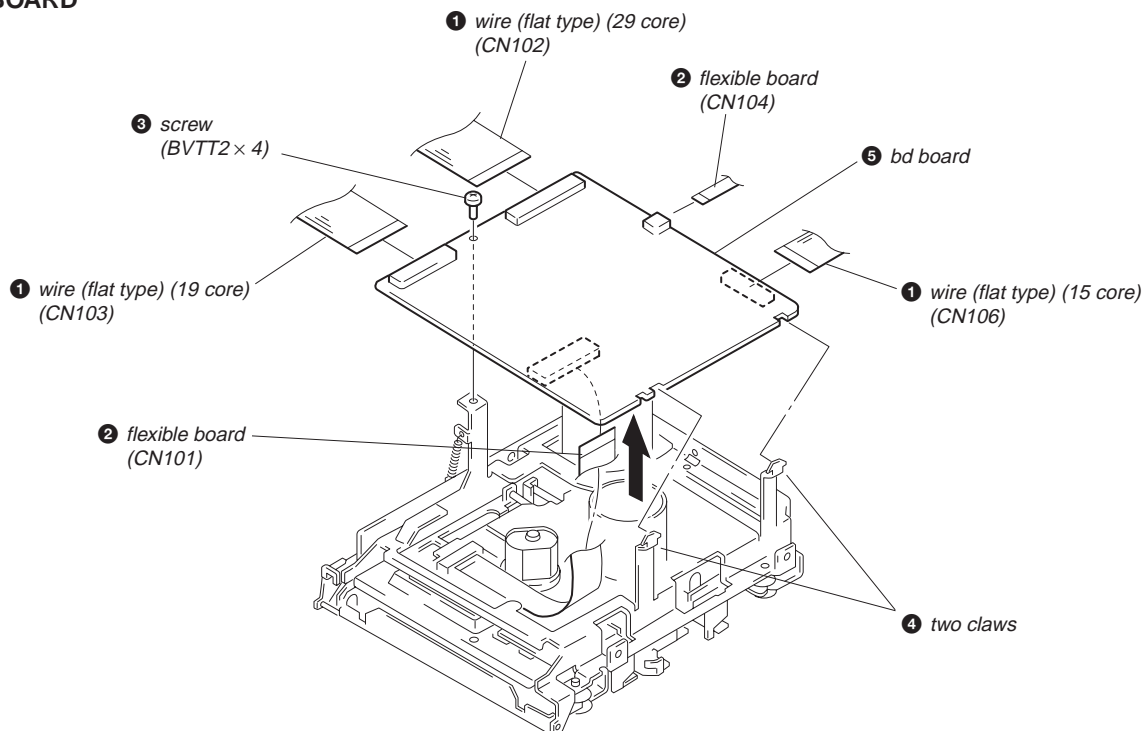
SHIELD CASE (UPPER)



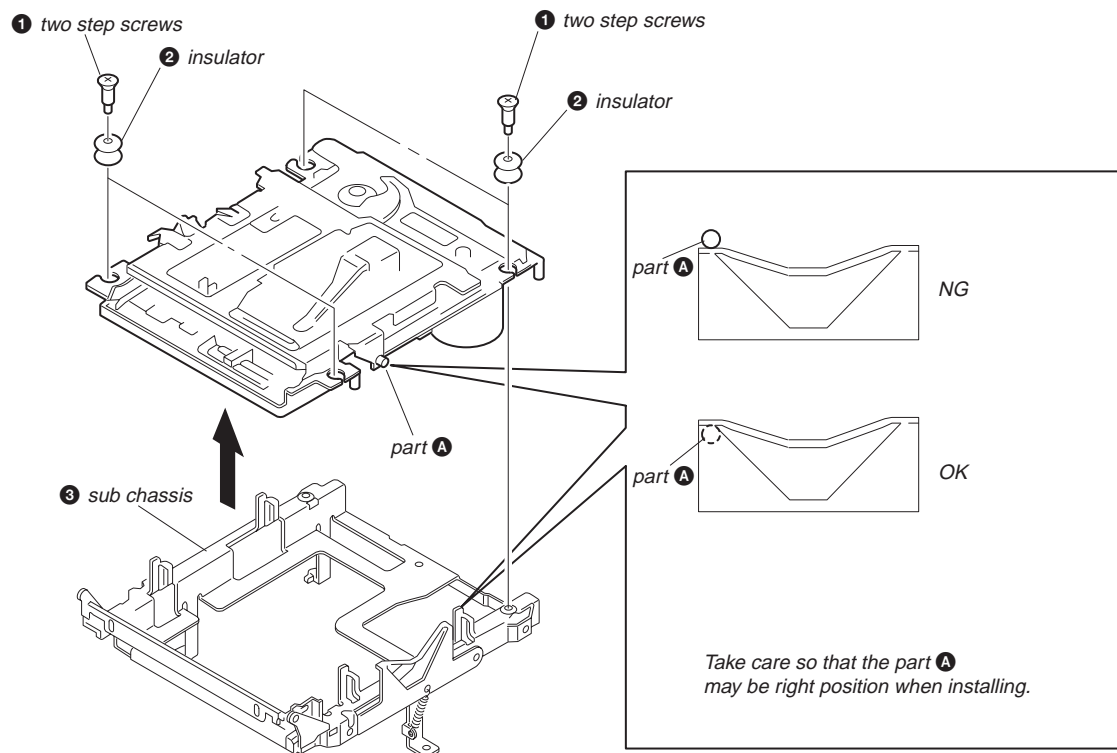
SHIELD CASE (LOWER), BRACKET (MDM)



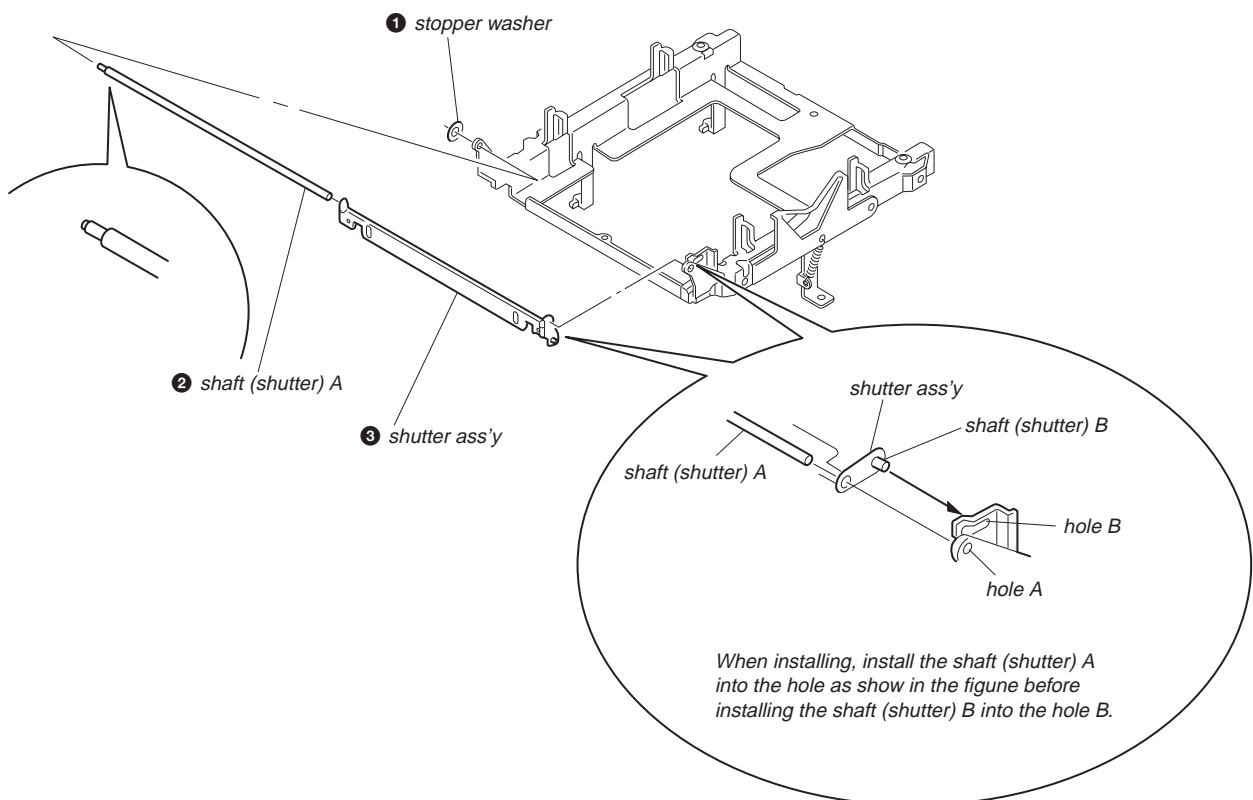
BD BOARD



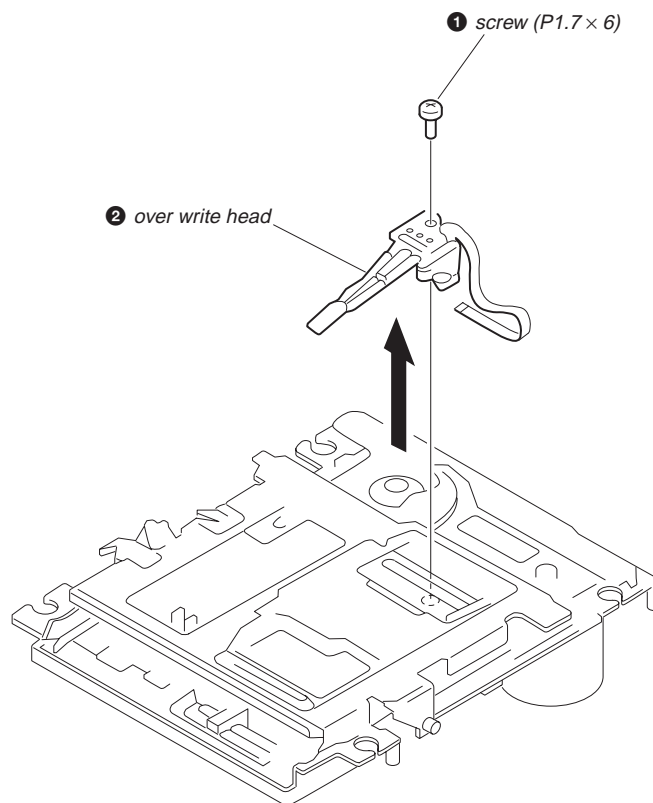
SUB CHASSIS



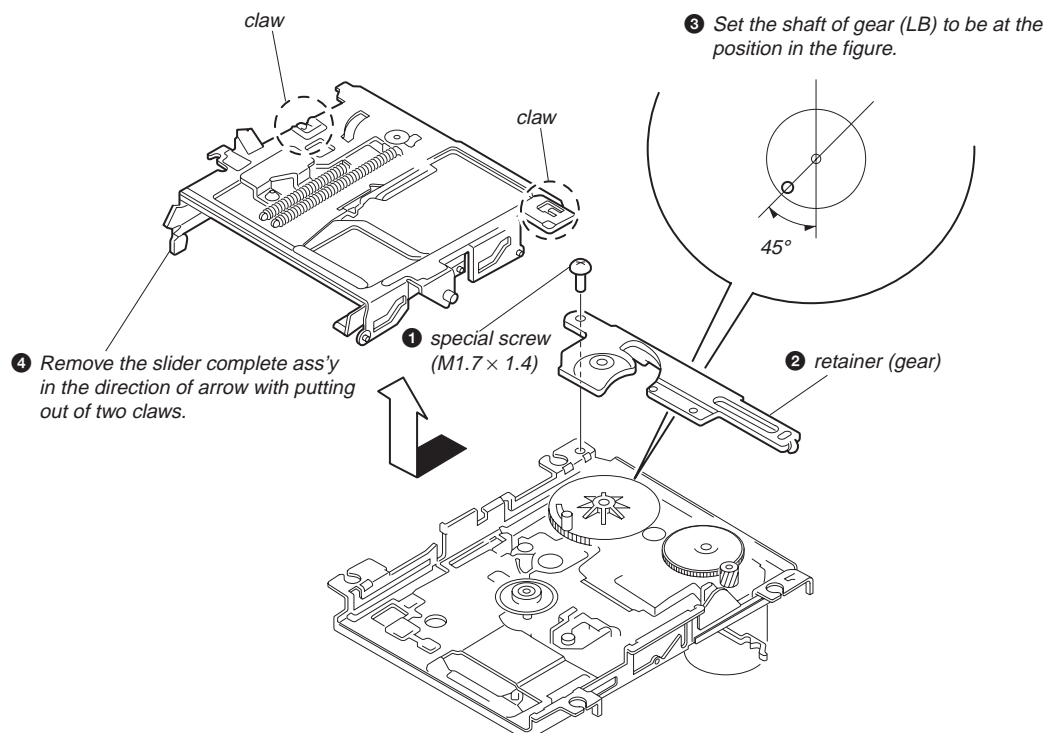
SHUTTER ASS'Y



OVER WRITE HEAD

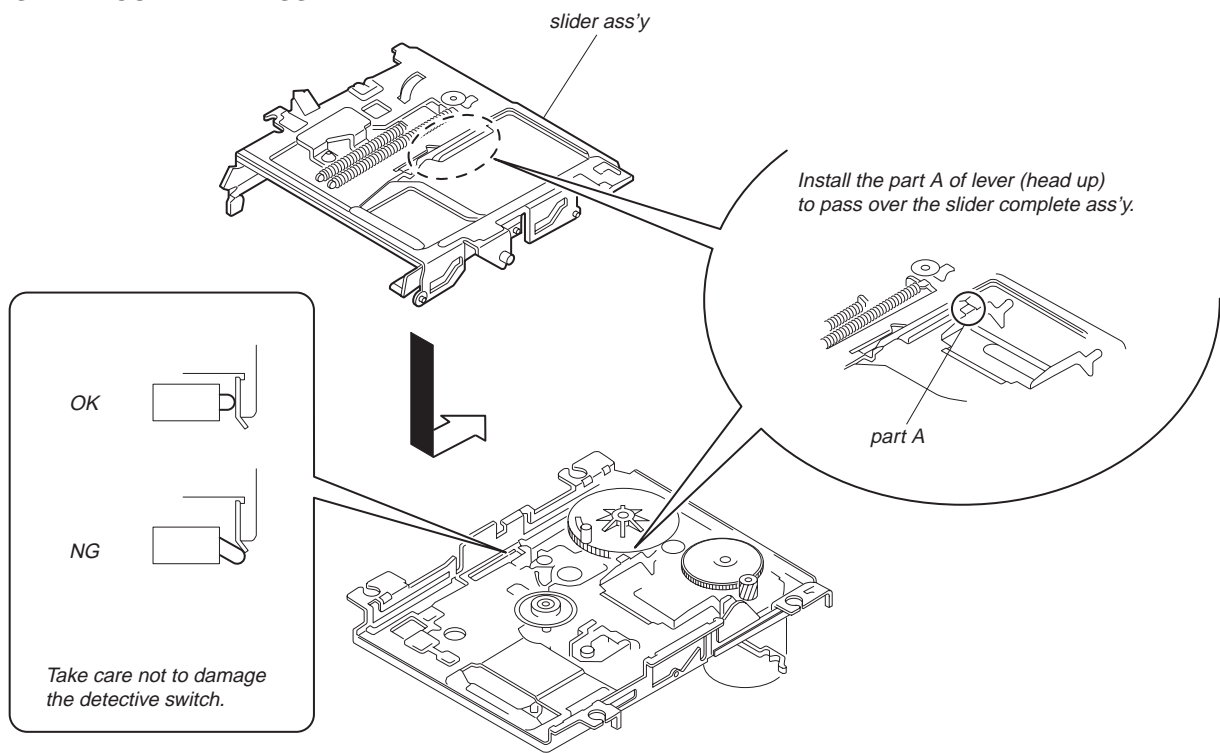


SLIDER COMPLETE ASS'Y






NOTE FOR INSTALLATION

• SLIDER COMPLETE ASS'Y




SECTION 4 TEST MODE


4-1. PRECAUTIONS FOR USE OF TEST MODE

- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it. Even if the  button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating. Therefore, it will be ejected while rotating. Be sure to press the  button after pressing the **[NO]** button and the rotation of disc is stopped.
- The erasing-protection tab is not detected in the test mode. Therefore, operating in the recording laser emission mode and pressing the  **REC** button, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode.

4-1-1. Recording Laser Emission Mode and Operating Button

- Continuous recording mode (CREC MODE)
- Traverse adjustment mode (EFBAL ADJUST)
- Laser power adjustment mode (LDPWR ADJUST)
- Laser power check mode (LDPWR CHECK)
- When pressing the  **REC** button.

4-2. SETTING THE TEST MODE

With the power supply to the set in OFF (standby) status, press the  button and **[NO]** button simultaneously, and the test mode is activated.

4-3. RELEASING THE TEST MODE

Press the **[FUNCTION]** button, and the power is turned OFF (standby status) and the set becomes ready for normal operation.

4-4. BASIC OPERATIONS OF THE TEST MODE





All operations are performed using the  button,  button, **[YES]** button, and **[NO]** button. The functions of these buttons are as follows.

Table 4-1.

Button	Function
 button	Changes parameters and modes.
 button	
YES button	Proceeds onto the next step. Finalizes input.
NO button	Returns to previous step. Stops operations

4-5. SELECTING THE TEST MODE



Thirteen test modes are selected by pressing the  button, and  button.

Table 4-2.

Display	Contents
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
LDPWR CHECK	Laser power check
EFBAL ADJUST	Traverse (E-F balance) adjustment
FBIAS ADJUST	Focus bias adjustment
FBIAS CHECK	Focus bias check
CPLAY MODE	Continuous playback mode
CREC MODE	Continuous recording mode
DETRK CHECK	Detrack check
Scurve CHECK	S curve check (*1)
EEP MODE	Non-volatile memory mode (*1)
MANUAL CMD	Manual command transfer mode (*1)
SVDATA READ	Data reading out mode (*1)

- For detailed description of each adjustment mode, refer to the "5. ELECTRICAL ADJUSTMENTS".
- If a different adjustment mode has been selected by mistake, press the **[NO]** button to exit from it.
- *1: The EEP MODE, Scurve CHECK, MANUAL CMD and SVDATA READ are not used in servicing. If set accidentally, press the **[NO]** button immediately to exit it.

4-6. OPERATING THE CONTINUOUS PLAYBACK MODE

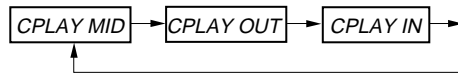
4-6-1. Entering the Continuous Playback Mode

1. Set the disc in the unit. (Whichever recordable discs or discs for playback only are available.)
2. Press the button or button and display “CPLAY MODE”.
3. Press the button to change the display to “CPLAY MID”.
4. When access completes, the display changes to “C1= 0000 AD= 00”.

Note: The numbers “0” displayed show you error rates and ADER.

4-6-2. Changing the Parts to be Played-back

1. Press the button during continuous playback to change the display as below.



2. When access completes, the display changes to “C1= 0000 AD= 00”.

Note: The numbers “0” displayed show you error rates and ADER.

4-6-3. Ending the Continuous Playback Mode

1. Press the button. The display will change to “CPLAY MODE”.
2. Press the button and remove the disc.

Notes:

1. The playback start address for IN, MID, and OUT are as follows.
IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster
In case you want to display the address of the playback position on the display, press the button and display “CPLAY (0000)”.
2. The button can be used to stop playing anytime.

4-7. OPERATING THE CONTINUOUS RECORDING MODE

4-7-1. Entering the Continuous Recording Mode

1. Set the MO disc in the unit. (Refer to note 3.)
2. Press the button or button and display “CREC MODE”.
3. Press the button to change the display to “CREC MID”.
4. When access completes, the display changes to “CREC (0000)” and lights up.

Note: The numbers “0” displayed shows you the recording position address.

4-7-2. Changing the Parts to be Recorded

1. When the button is pressed during continuous recording, the display changes as below. (indication turns off during change-over of display.)



2. When access completes, the display changes to “CREC (0000)” and lights up.

Note: The numbers “0” displayed shows you the recording position address.

4-7-3. Ending the Continuous Recording Mode

1. Press the button. The display will change to “CREC MODE” and goes off.
2. Press the button and remove the disc.

Notes:

1. The recording start address for IN, MID, and OUT are as follows.
IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster
2. The button can be used to stop recording anytime.
3. During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.
4. Do not perform continuous recording for long periods of time above 5 minutes.
5. During continuous recording, be careful not to apply vibration.

4-8. EEP MODE

This mode reads and writes the contents of the non-volatile memory.

It is not used in servicing. If set accidentally, press the [NO] button immediately to exit it.

4-9. FUNCTIONS OF OTHER BUTTONS

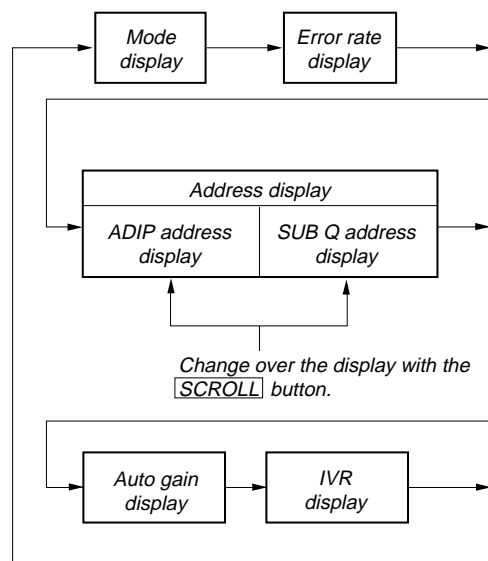
Table 4-3.

Button	Contents
	Sets continuous playback when pressed in the STOP state. (servo all on) When pressed during continuous playback, the tracking and sled servo turns on/off.
	Stop continuous playback and continuous recording. (servo all off)
VOL +	The sled moves to the outer circumference only when this is pressed.
VOL -	The sled moves to the inner circumference only when this is pressed.
REC	Turns recording on/off when pressed during continuous playback.
SCROLL	Switches between the pit and groove modes when pressed.
BAND	Switches between the CLV-S (pull-in mode) and CLV-A (playing servo) modes when pressed. (Switches the spindle servo mode.)
DISPLAY	Switches the display when pressed. Returns to previous step. Stop operations.
	Disc eject

Note: The erasing-protection tab is not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the REC button is pressed.

4-10. TEST MODE DISPLAYS

Each time the [DISPLAY] button pressed, the display changes in the following order.



Note: Auto gain display and IVR display are not used in servicing.

1. MODE display
Displays "TEMP ADJUST", "CPLAY MODE", etc..
2. Error rate display
Error rates are displayed as follows.
C1= AD=
C1= : Indicates C1 error
AD= : Indicates ADER
3. Address display
Address are displayed as follows.
h= a= (MO groove)
With this display, if [SCROLL] button is pressed, the following will be displayed.
h= s= (MO pit and CD)
h=: Header address
s=: SUB Q address
a=: ADIP address
Note: "—" is displayed when the address cannot be read.
4. Auto gain display
Auto gain are displayed as follows.
AGF= T=
F= Focus auto gain collection value
T= Tracking auto gain collection value

4-11. MEANINGS OF OTHER DISPLAYS

Table 4-4.

Display	Contents		
	Light	Off	Blinking
MANUAL	During continuous playback (servo all on)	Stop state (servo all off)	—
AUTO	Tracking and sled servo off	Tracking and sled servo on	—
PRESET	Recording mode on	Recording mode off	—
REPEAT	CLV lock state	CLV unlock state	—
TRACK	Pit mode	Groove mode	—
DISC	High reflection rate disc	Low reflection rate disc	—
LEVEL-SYNC	Spindle servo CLV-S (pull-in mode)	Spindle servo CLV-A (playing mode)	—
PGM	ABCD adjustment completed	Not adjustment	—
SHUFFLE	Focus auto gain and tracking auto gain successful	—	Focus auto gain successful, tracking auto gain failed

SECTION 5 ELECTRICAL ADJUSTMENTS

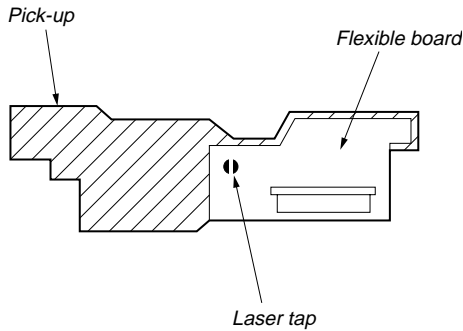
5-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eyesight.

5-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it.

Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

5-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

Table 5-1.

	Optical Pick-up	BD board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	○	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

- 2) Set the test mode when performing adjustments. After completing the adjustments, exit the test mode.
- 3) Perform the adjustments in the order shown.
- 4) Use the following tools and measuring devices.
 - Test disc (CD for playback only) TDYS-1 (Parts No. 4-963-646-01)
 - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
 - Oscilloscope (Measure after performing CAL of prove.)
 - Digital voltmeter
 - Thermometer
- 5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
(VC and ground will become short-circuited)

5-4. CREATING MO CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a MO continuous recording disc.

1. Set the test mode.
2. Insert a MO disc (blank disc) commercially available.
3. Press the button or button and display "CREC MODE".
4. Press the **[YES]** button and display "CREC MID".
"CREC (0300)" is displayed for a moment and recording starts.
5. Complete recording within 5 minutes.
6. Press the **[NO]** button and stop recording.
7. Press the button and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note: Be careful not to apply vibration during continuous recording.

5-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25°C reference data.

Notes:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method:

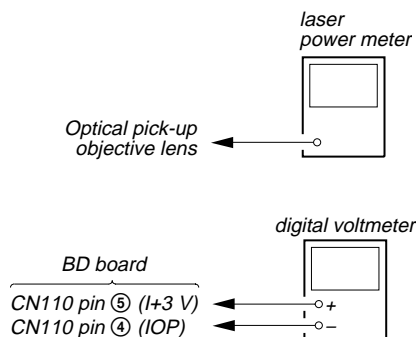
1. Press the button or button and display "TEMP ADJUST".
2. Press the button and select the "TEMP ADJUST" mode.
3. "TEMP = " and the current temperature a data will be displayed.
4. To save the data, press the button.
When not saving the data, press the button.
5. When the button is pressed, "TEMP= SAVE" will be displayed for some time, followed by "TEMP ADJUST".
When the button is pressed, "TEMP ADJUST" will be displayed immediately.

Specifications:

The temperature should be within "E0-EF", "F0-FF", "00-0F", "10-1F" and "20-2F".

5-6. LASER POWER ADJUSTMENT

Connection:



Adjusting Method:

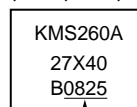
1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the button or button and move the optical pick-up.)
Connect the digital voltmeter to CN110 pin ⑤ (I+3 V) and CN110 pin ④ (IOP) of the BD board.
 2. Press the button or button and display "LDPWR ADJUST".
(Laser power: for adjustment)
 3. Press the button and display "LD 0.9 mW ".
 4. Press the button or button so that the reading of the laser power meter becomes 0.82 to 0.91 mW.
Set the range control on the laser power meter to 10 mW, then press the button to save the adjustment result in the non-volatile memory.
(“LD SAVE ” will be displayed for a moment.)
 5. Then “LD 7.0 mW ” will be displayed.
 6. Press the button or button so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the button and save the adjustment result in the non-volatile memory.
(“LD SAVE ” will be displayed for a moment.)
- Note:** Do not perform the emission with 7.0 mW more than 15 seconds continuously.
7. Press the button or button and display "LDPWR CHECK".
 8. Press the button and display "LD 0.9 mW ".
Check that the reading of the laser power meter becomes 0.80 to 0.96 mW.
 9. Press the button and display "LD 7.0 mW ".
Check that the reading of the laser power meter and digital voltmeter satisfy the specified value.

Specification:

Laser power meter reading : 7.0 ± 0.2 mW

Digital voltmeter reading : Optical pick-up displayed value ±10%

(Optical pick-up label)



IOP=82.5 mA in this case

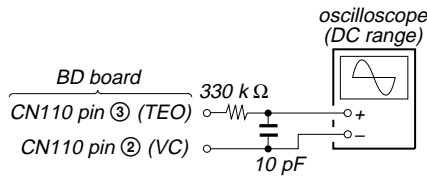
$IOP (mA) = Digital\ voltmeter\ reading\ (mV)/1\ (\Omega)$

10. Press the button and display "LDPWR CHECK", and stop the laser emission.
(The button is effective at all times to stop the laser emission.)

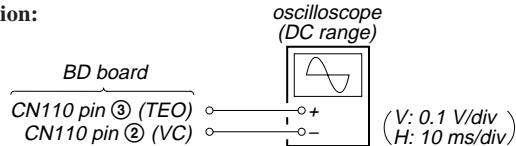
5-7. TRAVERSE (E-F BALANCE) ADJUSTMENT

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



Connection:



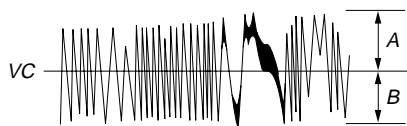
Adjusting Method:

1. Connect an oscilloscope to CN110 pin ③ (TEO) and CN110 pin ② (VC) of the BD board.
2. Load a MO disc (any available on the market). (Refer to note 1.)
3. Press the **[VOL +]** button or **[VOL -]** button and move the optical pick-up outside the pit.
4. Press the **[◀◀◀]** button or **[▶▶▶]** button and display "EFBAL ADJUST".
5. Press the **[YES]** button and display "EFB= MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Press the **[◀◀◀]** button or **[▶▶▶]** button so that the waveforms of the oscilloscope becomes the specified value. (When the **[◀◀◀]** button or **[▶▶▶]** button is pressed, the "00" of "EFB= MO-R" changes and the waveform changes.)

In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(MO read power traverse adjustment)

(Traverse Waveform)



specification: A=B

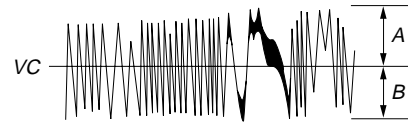
7. Press the **[YES]** button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFB= MO-W" will be displayed.)

8. Press the **[◀◀◀]** button or **[▶▶▶]** button so that the waveforms of the oscilloscope becomes the specified value. (When the **[◀◀◀]** button or **[▶▶▶]** button is pressed, the "00" of "EFB= MO-W" changes and the waveform changes.)

In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(MO write power traverse adjustment)

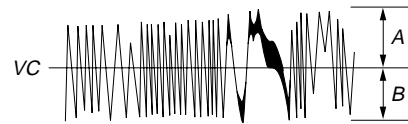
(Traverse Waveform)



specification: A=B

9. Press the **[YES]** button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFB= MO-P" will be displayed.)
10. The optical pick-up moves to the pit area automatically and servo is imposed.
11. Press the **[◀◀◀]** button or **[▶▶▶]** button until the waveforms of the oscilloscope moves closer to the specified value. In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

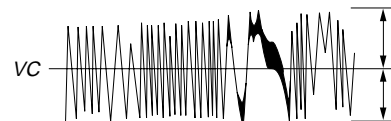
(Traverse Waveform)



specification: A=B

12. Press the **[YES]** button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFBAL CD" will be displayed.) The disc stops rotating automatically.
13. Press the **[▲]** button and remove the MO disc.
14. Load the test disc TDYS-1.
15. Press the **[YES]** button and display "EFB= CD". Servo is imposed automatically.
16. Press the **[◀◀◀]** button or **[▶▶▶]** button until the waveforms of the oscilloscope moves closer to the specified value. In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)



specification: A=B

17. Press the **[YES]** button, and save the result of adjustment to the non-volatile memory. ("EFB= SAVE" will be displayed for a moment. Then "EFBAL ADJUST" will be displayed.)
18. Press the **[▲]** button and remove the test disc TDYS-1.

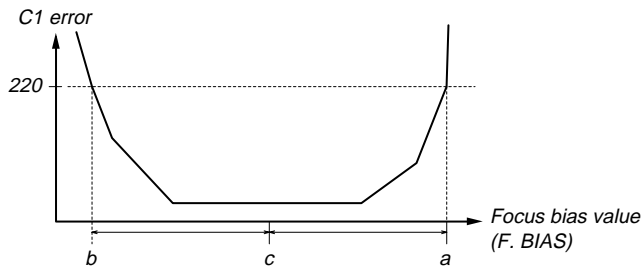
5-8. FOCUS BIAS ADJUSTMENT

Adjusting Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Press the **◀◀◀** button or **▶▶▶** button and display "CPLAY MODE".
3. Press the **YES** button and display "CPLAY MID".
4. Press the **NO** button when "C1= 0000 AD= 00" is displayed.
5. Press the **◀◀◀** button or **▶▶▶** button and display "FBIAS ADJUST".
6. Press the **YES** button and display "0000/00 a=00".
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a=] indicate the focus bias value.
7. Press the **▶▶▶** button and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
8. Press the **YES** button and display "0000/00 b=00".
9. Press the **◀◀◀** button and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
10. Press the **YES** button and display "0000/00 c=00".
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the **YES** button.
12. If the "(00)" in "00-00-00 (00)" is above 20, press the **YES** button.
If below 20, press the **NO** button and repeat the adjustment from step 2 again.
13. Press the **NO** button and press the **▲** button to remove the continuously recorded disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position c is automatically calculated from points a and b.

Note 2: As the C1 error rate changes, perform the adjustment using the average value.



5-9. ERROR RATE CHECK

5-9-1. CD Error Rate Check

Checking Method:

1. Load a test disc TDYS-1.
2. Press the **◀◀◀** button or **▶▶▶** button and display "CPLAY MODE".
3. Press the **YES** button and display "CPLAY MID".
4. "C1= 0000 AD= 00" is displayed.
5. Check that the C1 error is below 20.
6. Press the **NO** button, stop playback, press the **▲** button, and remove the test disc.

5-9-2. MO Error Rate Check

Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Press the **◀◀◀** button or **▶▶▶** button and display "CPLAY MODE".
3. Press the **YES** button and display "CPLAY MID".
4. "C1= 0000 AD= 00" is displayed.
5. If the C1 error is below 50, check that ADER is 00.
6. Press the **NO** button, stop playback, press the **▲** button, and remove the continuously recorded disc.

5-10. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

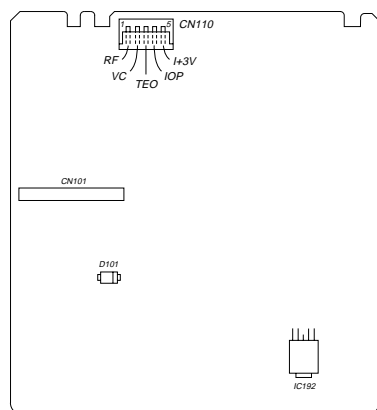
Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc").
2. Press the **◀◀◀** button or **▶▶▶** button and display "CPLAY MODE".
3. Press the **YES** button and display "CPLAY MID".
4. Press the **NO** button when "C1= 0000 AD= 00" is displayed.
5. Press the **◀◀◀** button or **▶▶▶** button and display "FBIAS CHECK".
6. Press the **YES** button and display "0000/00 c=00".
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c=] indicate the focus bias value.
Check that the C1 error is below 50 and ADER is 00.
7. Press the **YES** button and display "0000/00 b=00".
Check that the C1 error is not below 220 and ADER is not above 00 every time.
8. Press the **YES** button and display "0000/00 a=00".
Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the **NO** button, next press the **▲** button, and remove the continuously recorded disc.

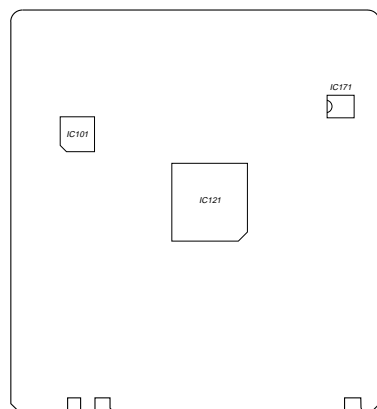
Note 1: If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

5-11. ADJUSTING POINTS AND CONNECTING POINTS

[BD BOARD] (COMPONENT SIDE)

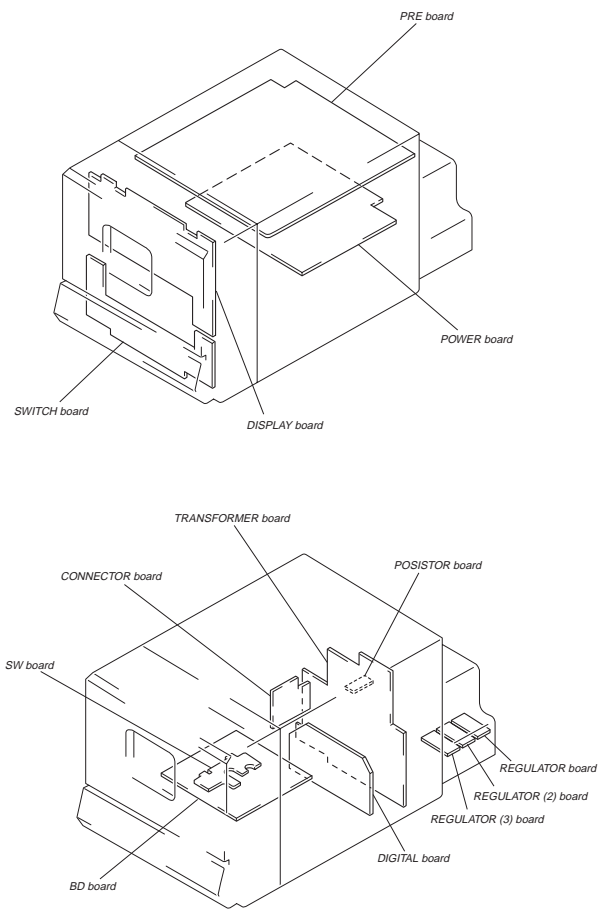


[BD BOARD] (CONDUCTOR SIDE)



SECTION 6 DIAGRAMS

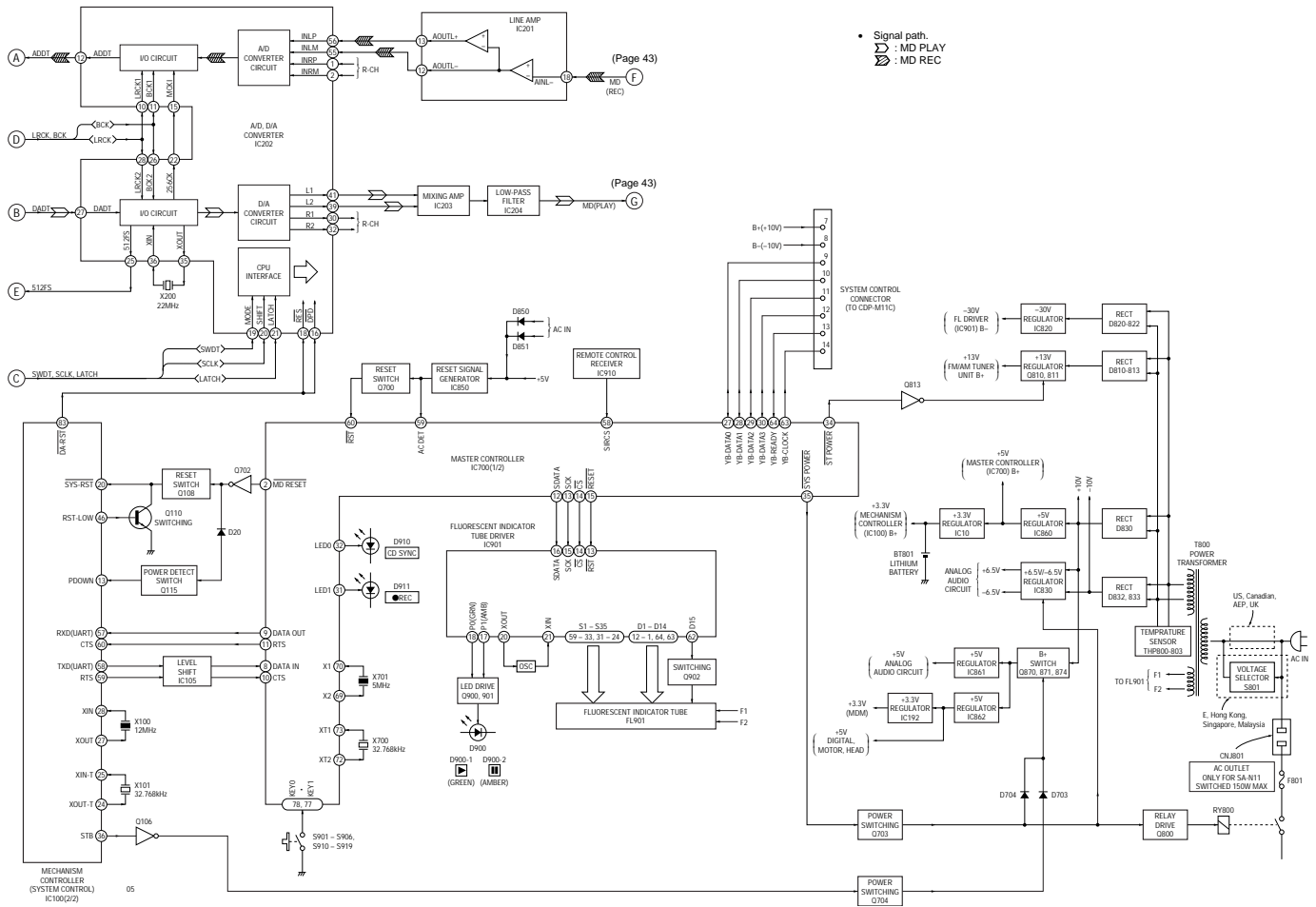
• Circuit Boards Location



6-1. BLOCK DIAGRAM (1/3)



6-2. BLOCK DIAGRAM (2/3)



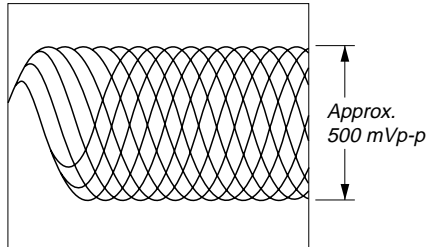
6-3. BLOCK DIAGRAM (3/3)



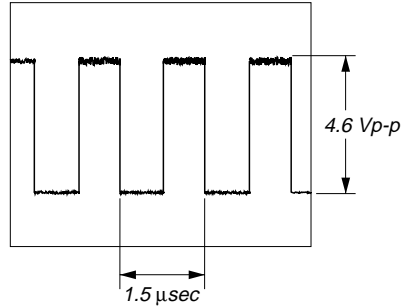
• Waveforms

– MD MECHANISM DECK Section –

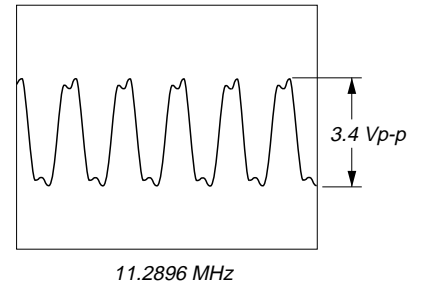
❶ IC101 ❶, ❷ (I, J) (Play Mode)



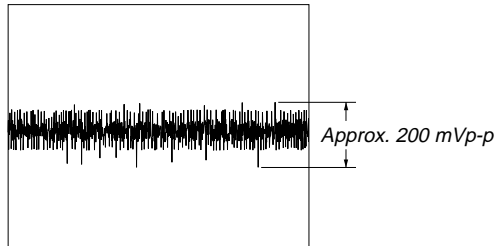
❸ IC151 ❸ (CAPA+) (Play Mode)



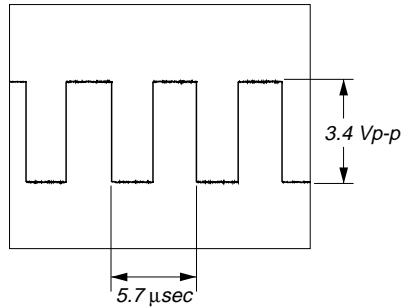
❹ IC121 ❷ (FS256)



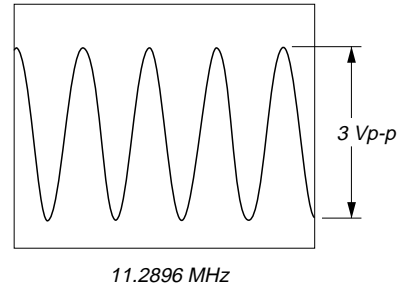
❺ IC101 ❹ (A) (Play Mode)



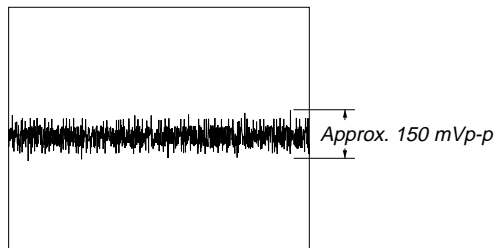
❻ IC121 ❸ (FS4)



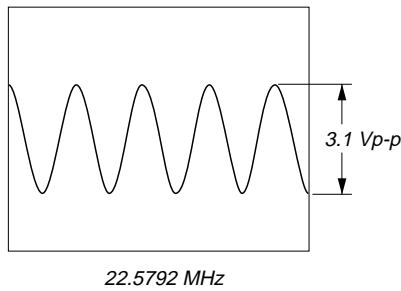
❼ IC123 ❶



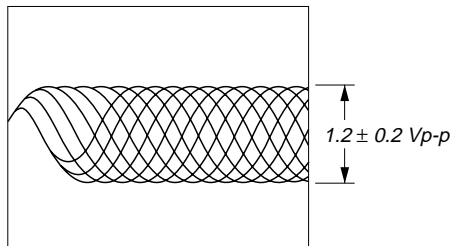
❽ IC101 ❸, ❹ (E, F) (Play Mode)



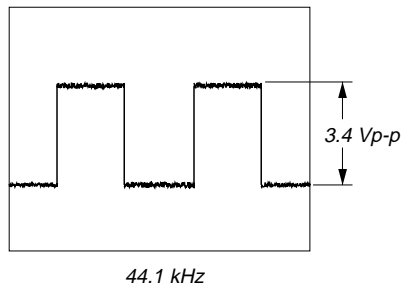
❿ IC121 ❹ (OSCI)



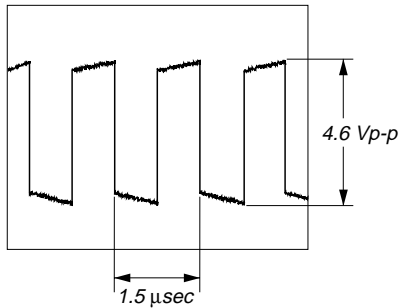
❾ IC101 ❸ (RF) (Play Mode)



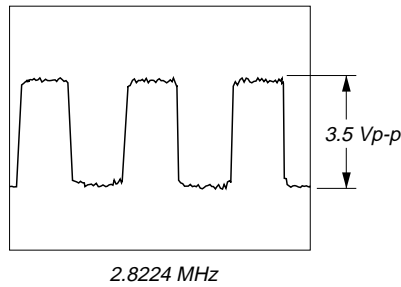
❶ IC121 ❹ (LRCK)



❶ IC152 ❸ (CAPA-) (Play Mode)

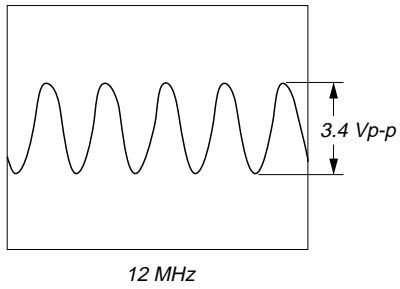


❷ IC121 ❹ (XBCK)

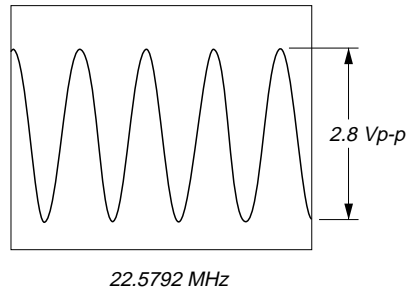


– MECHANISM CONTROL, A/D, D/A CONVERTER Section –

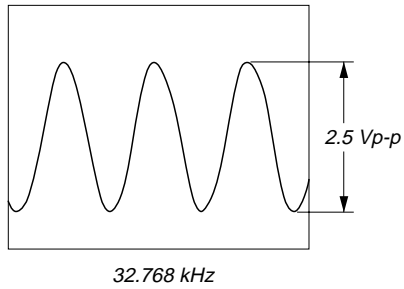
❶ IC100 ⑳ (XOUT)



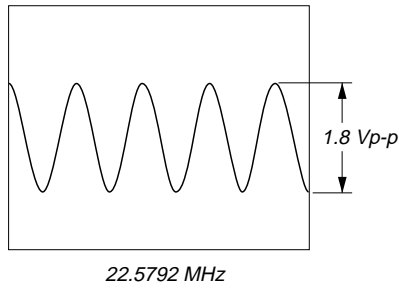
❷ IC202 ㉔ (512FS)



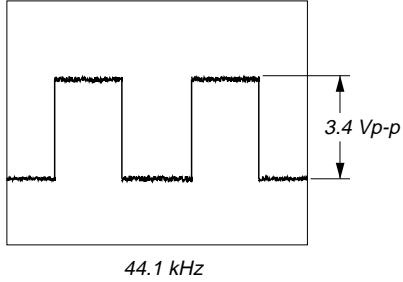
❸ IC100 ㉔ (XOUT-T)



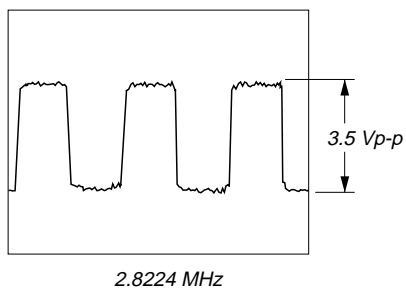
❹ IC202 ㉔ (XOUT)



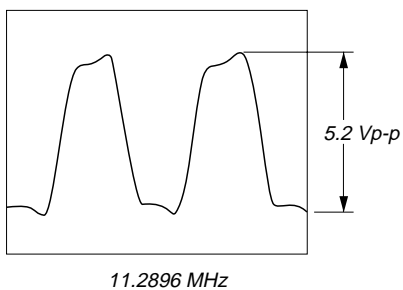
❺ IC202 ⑩, ㉔ (LRCK1, LRCK2)



❻ IC202 ⑪, ㉔ (BCK1, BCK2)

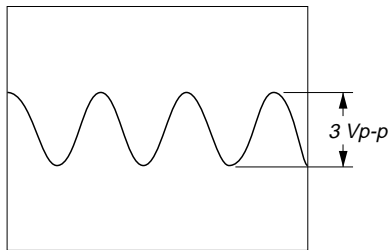


❼ IC202 ⑬, ㉔ (MCK1, 256CK)



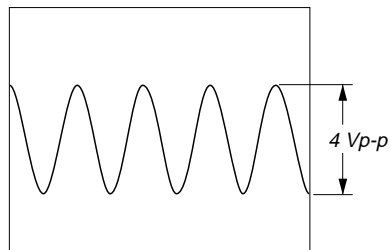
– MASTER CONTROL, POWER SUPPLY Section –

❶ IC700 ⑩ (XT1)



32.768 kHz

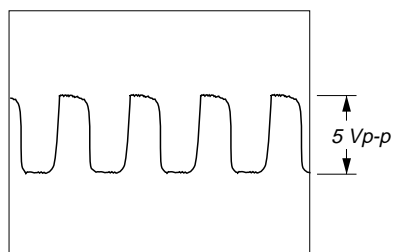
❷ IC700 ⑩ (X1)



5 MHz

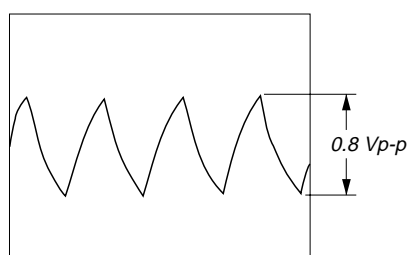
– DISPLAY Section –

❶ IC901 ⑳ (XOUT)



Approx. 384 kHz

❷ IC901 ㉑ (XIN)

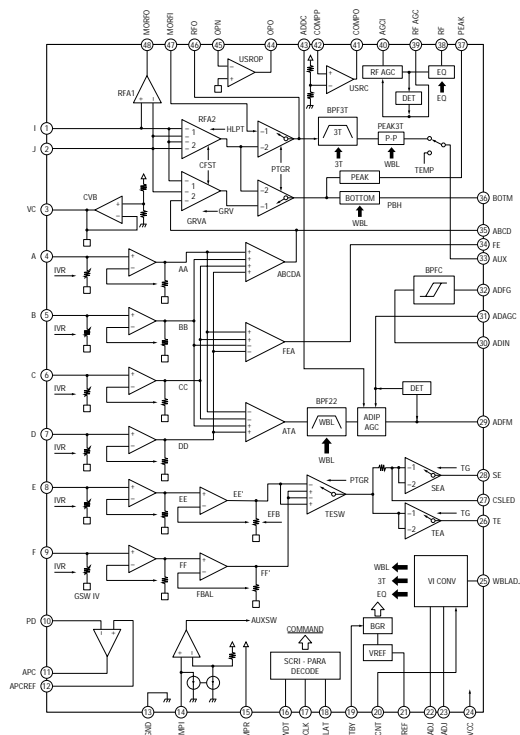


Approx. 374 kHz

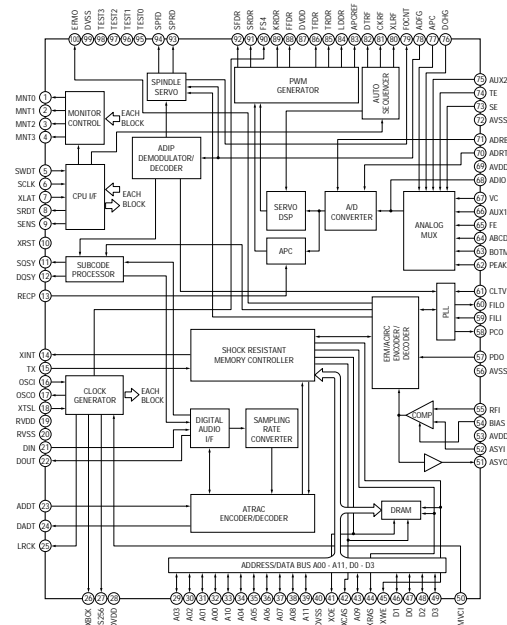
• IC Block Diagrams

– MD MECHANISM DECK Section –

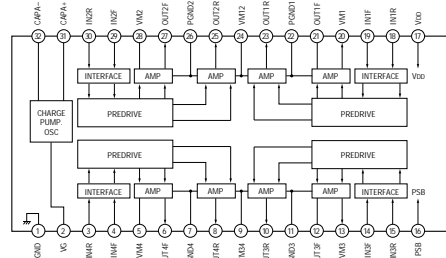
IC101 CXA2523R



IC121 CXD2650R

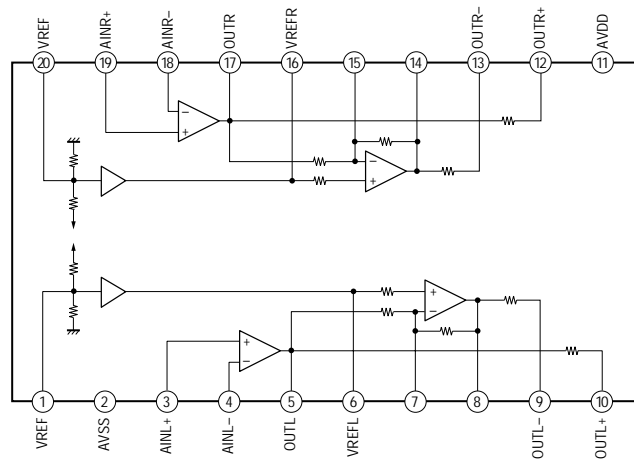


IC152 BH6511FS

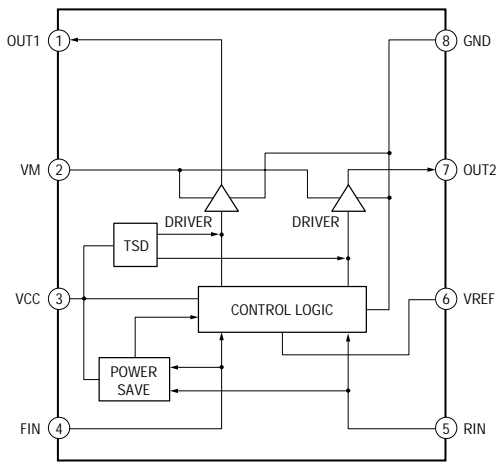


– MECHANISM CONTROL, A/D, D/A CONVERTER Section –

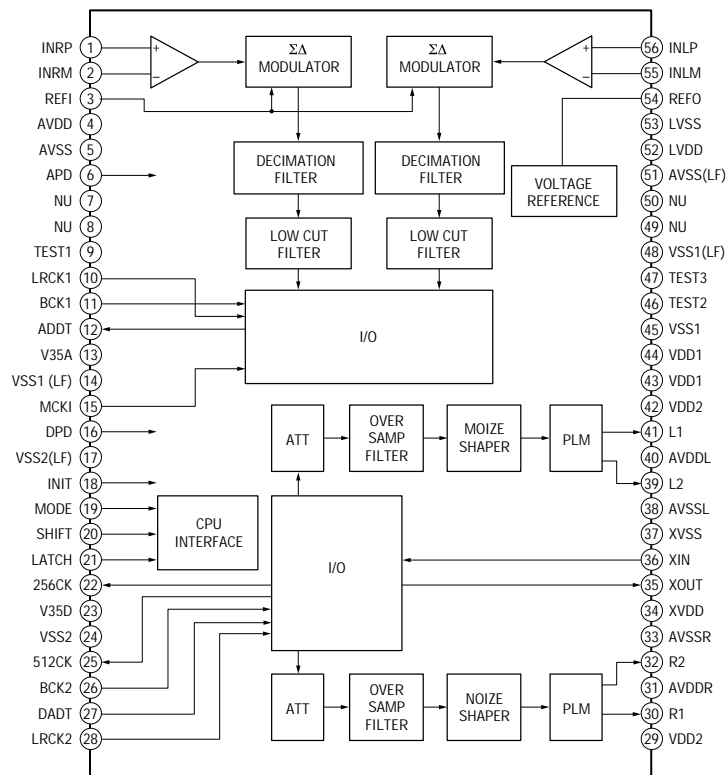
IC201 CXA8054M



IC361 BA6287F

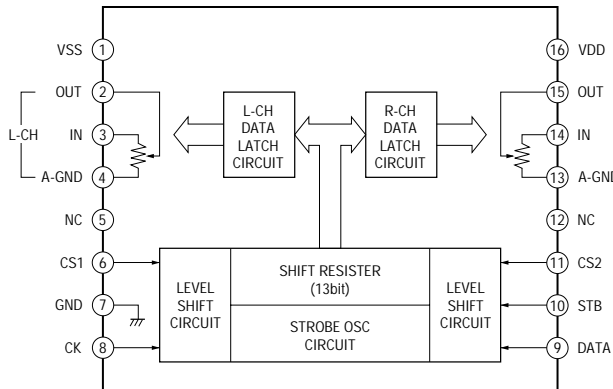


IC202 CXD8607N-T6



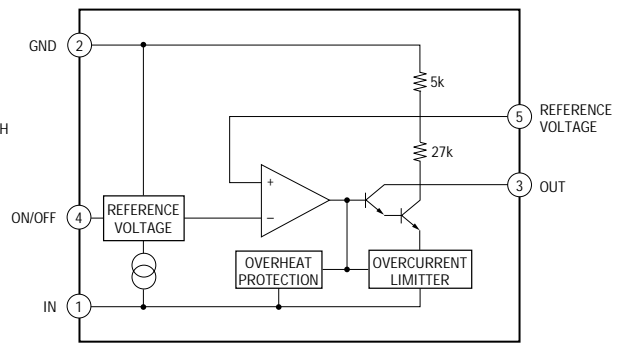
– AUDIO/TUNER Section –

IC640 TC9210P

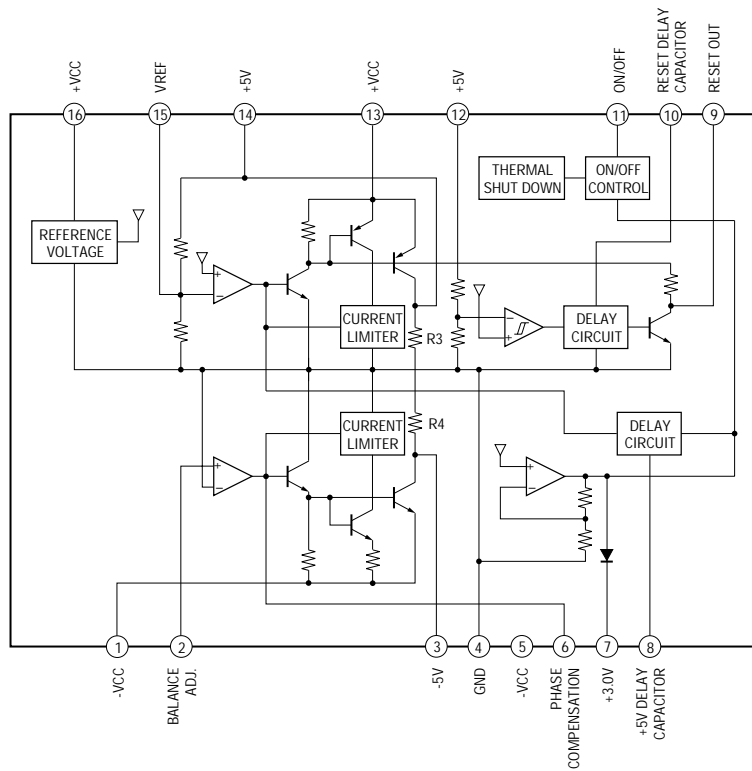


– MASTER CONTROL, POWER SUPPLY Section –

IC820 M5293L



IC830 M5294P



6-14. IC PIN FUNCTION DESCRIPTION

• BD BOARD IC101 CXA2523R (RF AMPLIFIER)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input terminal
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2650R (IC121)
17	SCLK	I	Serial clock signal input from the CXD2650R (IC121)
18	XLAT	I	Serial latch signal input from the CXD2650R (IC121)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2650R (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2650R (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2650R (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz \pm 1 kHz) output to the CXD2650R (IC121)
33	AUX	O	Auxiliary signal (I ₃ signal/temperature signal) output to the CXD2650R (IC121)
34	FE	O	Focus error signal output to the CXD2650R (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2650R (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2650R (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2650R (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2650R (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **BD BOARD IC121 CXD2650R**

(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHC PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Function
1	FOK	O	Focus OK signal output to the mechanism controller (IC100) "H" is output when focus is on
2	SHCK	O	Track jump detection signal output to the mechanism controller (IC100)
3	XBUSY	O	Monitor 2 signal output to the mechanism controller (IC100)
4	SLOC	O	Monitor 3 signal output to the mechanism controller (IC100)
5	SWDT	I	Writing data signal input from the mechanism controller (IC100)
6	SCLK	I	Serial clock signal input from the mechanism controller (IC100)
7	XLAT	I	Serial latch signal input from the mechanism controller (IC100)
8	SRDT	O (3)	Reading data signal output to the mechanism controller (IC100)
9	SENS	O (3)	Internal status (SENSE) output to the mechanism controller (IC100)
10	<u>XRST</u>	I	Reset signal input from the mechanism controller (IC100) "L": reset
11	SQSY	O	Subcode Q sync (SCOR) output to the mechanism controller (IC100) "L" is output every 13.3 msec Almost all, "H" is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the mechanism controller (IC100) "L" is output every 13.3 msec Almost all, "H" is output
13	RECP	I	Laser power selection signal input from the mechanism controller (IC100) "H": recording mode, "L": playback mode
14	XINT	O	Interrupt status output to the mechanism controller (IC100)
15	TX	I	Recording data output enable signal input from the mechanism controller (IC100) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input from the A/D, D/A converter (IC202)
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal Not used (open)
18	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for optical in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for optical out) Not used
23	ADDT	I	Recording data input from the A/D, D/A converter (IC202)
24	DADT	O	Playback data output to the A/D, D/A converter (IC202)
25	LRCK	O	L/R clock signal (44.1 kHz) output to the A/D, D/A converter (IC202)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC202)
27	FS256	O	Clock signal (11.2896 MHz) output terminal Not used (open)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29	A03	O	Address signal output to the external D-RAM Not used (open)
30	A02	O	
31	A01	O	
32	A00	O	
33	A10	O	
34	A04	O	
35	A05	O	
36	A06	O	
37	A07	O	
38	A08	O	
39	A11	O	

Pin No.	Pin Name	I/O	Function
40	DVSS	—	Ground terminal (digital system)
41	XOE	O	Output enable signal output to the external D-RAM Not used (open)
42	XCAS	O	Column address strobe signal output to the external D-RAM Not used (open)
43	A09	O	Address signal output to the external D-RAM Not used (open)
44	XRAS	O	Row address strobe signal output to the external D-RAM Not used (open)
45	XWE	O	Write enable signal output to the external D-RAM Not used (open)
46	D1	I/O	Two-way data bus for the external D-RAM Not used (open)
47	D0	I/O	
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523R (IC101)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523R (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523R (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523R (IC101)
65	FE	I (A)	Focus error signal input from the CXA2523R (IC101)
66	AUX1	I (A)	Auxiliary signal (Is signal/temperature signal) input from the CXA2523R (IC101)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523R (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground system (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523R (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523R (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal Not used (fixed at “L”)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at “L”)
78	ADFG	I	ADIP duplex FM signal (22.05 kHz \pm 1 kHz) input from the CXA2523R (IC101)
79	FOCNT	O	Filter f0 control signal output to the CXA2523R (IC101)
80	XLRF	O	Serial latch signal output to the CXA2523R (IC101)
81	CKRF	O	Serial clock signal output to the CXA2523R (IC101)
82	DTRF	O	Writing data output to the CXA2523R (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)

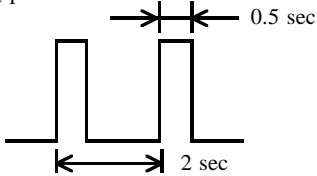
Pin No.	Pin Name	I/O	Function
85	TRDR	O	Tracking servo drive PWM signal output terminal (–)
86	TFDR	O	Tracking servo drive PWM signal output terminal (+)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal output terminal (+)
89	FRDR	O	Focus servo drive PWM signal output terminal (–)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal output terminal (–)
92	SFDR	O	Sled servo drive PWM signal output terminal (+)
93	SPRD	O	Spindle servo drive PWM signal output terminal (–)
94	SPFD	O	Spindle servo drive PWM signal output terminal (+)
95	TEST0	I	Input terminal for the test (fixed at “L”)
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• **DIGITAL BOARD IC100 RU8X12MF-0012 (MECHANISM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	DAOUT0	O	Output terminal for the test C1 is output when test mode
2	DAOUT1	O	Output terminal for the test ADER is output when test mode
3	KEY0	I	Key input terminal Not used (fixed at "H")
4	KEY1	I	
5	KEY2	I	
6	CHACK-IN	I	Detection input from the disc chucking-in detect switch (S685) "L": chucking
7	PACK-IN	I	Detection input from the disc detect switch Not used (fixed at "H")
8	PACK-OUT	I	Detection input from the loading-out detect switch (S686) "L" at a load-out position, others: "H"
9	—	I	Not used (fixed at "L")
10	—	I	Not used (fixed at "L")
11	AVSS	—	Ground terminal
12	XINT	I	Interrupt status input from the CXD2650R (IC121)
13	PDOWN	I	Power down detection signal input terminal "L": power down, normally: "H"
14	—	I	Not used (fixed at "L")
15	SQSY	I	Subcode Q sync (SCOR) input from the CXD2650R (IC121) "L" is input every 13.3 msec Almost all, "H" is input
16	DQSY	I	Digital In U-bit CD format subcode Q sync (SCOR) input from the CXD2650R (IC121) "L" is input every 13.3 msec Almost all, "H" is input
17	—	I	Not used (fixed at "L")
18	—	I	
19	—	I	
20	$\overline{\text{SYS-RST}}$	I	System reset signal input from the master controller (IC700) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
21	TEST	I	Input terminal for the test Fixed at "L" in this set
22	+3.3V	—	Power supply terminal (+3.3V)
23	VBAT	I	Power supply terminal for the backup (for internal RAM)
24	XOUT-T	O	Sub system clock output terminal (32.768 kHz)
25	XIN-T	I	Sub system clock input terminal (32.768 kHz)
26	GND	—	Ground terminal
27	XOUT	O	Main system clock output terminal (12 MHz)
28	XIN	I	Main system clock input terminal (12 MHz)
29	EXMEM	I	Selected terminal for the RAM device "L": used for internal RAM, "H": used for external RAM device (fixed at "L" in this set)
30	S1	O	System clock output terminal Not used (open)
31	—	I	Not used (fixed at "L")
32	SENS	I	Internal status (SENSE) input from the CXD2650R (IC121)
33	SHOCK	I	Track jump detection signal input from the CXD2650R (IC121)
34	—	I	Not used (fixed at "L")
35	—	I	Not used (fixed at "L")
36	STB	O	Strobe signal output to the main power supply circuit "H": power on, "L": standby mode
37	REC P	I	Detection input from the recording position detect switch (S688) "L" active
38	PB P	I	Detection input from the playback position detect switch (S687) "L" active
39	LD LOW	O	Loading motor voltage control signal output to the loading motor driver (IC361)
40	—	O	Not used (open)
41	MNT2	I	Monitor 2 signal input from the CXD2650R (IC121)
42	MNT3	I	Monitor 3 signal input from the CXD2650R (IC121)

Pin No.	Pin Name	I/O	Function
43	LED0	O	LED drive signal output terminal Not used (open)
44	—	I	Not used (fixed at “L”)
45	—	I	Not used (fixed at “L”)
46	RST-LOW	O	Output of signal to place the reset in “L” status after a backup processing is finished
47	GND	—	Ground terminal
48	+3.3V	—	Power supply terminal (+3.3V)
49	SNG/CHG	I	Input terminal for setting mini-disc single mode or changer mode “L”: mini-disc single mode, “H”: changer mode (fixed at “L” in this set)
50	JOG1	I	JOG dial pulse input of the rotary encoder Not used (fixed at “L”)
51	JOG0	I	JOG dial pulse input of the rotary encoder Not used (fixed at “L”)
52	SDA	I/O	Two-way data bus for the EEPROM (IC171)
53	SCL	O	Clock signal output to the EEPROM (IC171)
54	—	I	Not used (fixed at “L”)
55	—	I	
56	—	I	
57	RXD	I	UART data input from the master controller (IC700)
58	TXD	O	UART data output to the master controller (IC700)
59	RTS	O	Output of signal to inhibit data transmission to the master controller (IC700)
60	CTS	I	Input of signal to reject data reception from the master controller (IC700)
61	—	I	Not used (fixed at “L”)
62	—	I	Not used (fixed at “L”)
63	CLKSET0	I	Clock destination selected terminal (fixed at “L” in this set)
64	CLKSET1	I	Clock destination selected terminal (fixed at “L” in this set)
65	GND	—	Ground terminal
66	+3.3V	—	Power supply terminal (+3.3V)
67	SCLK	O	Serial clock signal output to the CXD2650R (IC121) and A/D, D/A converter (IC202)
68	SWDT	O	Writing data output to the CXD2650R (IC121) and A/D, D/A converter (IC202)
69	SRDT	I	Reading data input from the CXD2650R (IC121)
70	EMP	O	Emphasis control signal output terminal when recording mode Not used (open)
71	SCK1	O	Serial clock signal output for the display Not used (open)
72	SOUT1	O	Serial data output for the display Not used (open)
73	SIN1	O	Chip select signal output for the display Not used (open)
74	CSB	I	Not used (fixed at “H”)
75	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”: laser on
76	PIT/GRV	O	Pit/groove detection signal output terminal “H” is output for the playback only disc or TOC area Not used (open)
77	FOK	I	Focus OK signal input from the CXD2650R (IC121) “H” is input when focus is on
78	—	O	Not used (open)
79	LOCK	O	Lock signal output terminal Not used (open)
80	WRPWR	O	Laser power select signal output to the CXD2650R (IC121) “H”: recording mode, “L”: playback mode
81	DIG-RST	O	Reset signal output to the CXD2650R (IC121) and BH6511FS (IC152) “L”: reset
82	—	O	Not used (open)
83	DA-RST	O	Reset signal output to the A/D, D/A converter (IC202) “L”: reset
84	DSEL-A	O	Not used (open)
85	DSEL-B	O	Not used (open)

Pin No.	Pin Name	I/O	Function
86	MOD	O	<p>Laser modulation select signal output Playback power: "L", Stop: "H", Recording power:</p> 
87	REC/PB	O	Not used (open)
88	—	O	Not used (open)
89	SCTX	O	Recording data output enable signal output to the CXD2650R (IC121) Writing data transmission timing output (Also serves as the magnetic head on/off output)
90	XLATCH	O	Serial latch signal output to the CXD2650R (IC121) and A/D, D/A converter (IC202)
91	—	O	Not used (open)
92	—	O	Not used (open)
93	AMUTE	O	Mute control signal output terminal Not used (open)
94	LDOUT	O	Motor control signal output to the loading motor driver (IC361) *1
95	LDIN	O	Motor control signal output to the loading motor driver (IC361) *1
96	LIMIT-IN	I	Detection input from the sled limit-in detect switch (S681) The optical pick-up is inner position when "L"
97	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S683) "H": write protect
98	REFLECT	I	Detection input from the disc reflection rate detect switch (S682) "L": high reflection rate disc, "H": low reflection rate disc
99	GND	—	Ground terminal
100	+3.3V	—	Power supply terminal (+3.3V)

*1 Loading Motor Control

Operation Terminal	IN	OUT	BRAKE	RUN IDLE
LDIN (pin 95)	"H"	"L"	"H"	"L"
LDOUT (pin 94)	"L"	"H"	"H"	"L"

• **DIGITAL BOARD IC202 CXD8607N (A/D, D/A CONVERTER)**

Pin No.	Pin Name	I/O	Function
1	INRP	I	R-ch analog signal (+) input terminal
2	INRM	I	R-ch analog signal (–) input terminal
3	REFI	I	Reference voltage (+3.3V) input terminal (for A/D converter section)
4	AVDD	—	Power supply terminal (+5V) (for A/D converter section, analog system)
5	AVSS	—	Ground terminal (for A/D converter section, analog system)
6	APD	I	Power down detection input of the A/D converter section (for analog section) “L”: power down
7	NU	—	Not used (open)
8	NU	—	Not used (open)
9	TEST1	I	Input terminal for the test (fixed at “L”)
10	LRCK1	I	L/R clock signal (44.1 kHz) input from the CXD2650R (IC121) (for A/D converter section)
11	BCK1	I	Bit clock signal (2.8224 MHz) input from the CXD2650R (IC121) (for A/D converter section)
12	ADDT	O	Recording data output terminal
13	V35A	—	Power supply terminal (+3.3V) (for analog system)
14	VSS1	—	Ground terminal (for A/D converter section, digital system)
15	MCKI	I	Master clock (256Fs=11.2896 MHz) input of the A/D converter section
16	$\overline{\text{DPD}}$	I	Reset signal input from the mechanism controller (IC100) Reset signal is used as a detection signal of power down to A/D converter (digital section) “L”: reset (power down)
17	VSS2	—	Ground terminal (for D/A converter section, digital system)
18	$\overline{\text{RES}}$	I	Reset signal input from the mechanism controller (IC100) Reset signal is used as a initialize signal to D/A converter section “L”: reset (initialize)
19	MODE	I	Writing data input from the mechanism controller (IC100)
20	SHIFT	I	Serial clock signal input from the mechanism controller (IC100)
21	XLATCH	I	Serial latch signal input from the mechanism controller (IC100)
22	256CK	O	256Fs (11.2896 MHz) clock signal output terminal
23	V35D	—	Power supply terminal (+3.3V) (for digital system)
24	VSS2	—	Ground terminal (for D/A converter section, digital system)
25	512FS	O	512Fs (22.5792 MHz) clock signal output to the CXD2650R (IC121)
26	BCK2	I	Bit clock signal (2.8224 MHz) input from the CXD2650R (IC121) (for D/A converter section)
27	DADT	I	Playback data input terminal
28	LRCK2	I	L/R clock signal (44.1 kHz) input from the CXD2650R (IC121) (for D/A converter section)
29	VDD2	—	Power supply terminal (+5V) (for D/A converter section, digital system)
30	R1	O	R-ch PLM signal 1 output terminal
31	AVDDR	—	Power supply terminal (+5V) (for R-ch side D/A converter section, analog system)
32	R2	O	R-ch PLM signal 2 output terminal
33	AVSSR	—	Ground terminal (for R-ch side D/A converter section, analog system)
34	XVDD	—	Power supply terminal (+5V) (for X’tal system)
35	XOUT	O	System clock output terminal (22 MHz)
36	XIN	I	System clock input terminal (22 MHz)
37	XVSS	—	Ground terminal (for X’tal system)
38	AVSSL	—	Ground terminal (for L-ch side D/A converter section, analog system)
39	L2	O	L-ch PLM signal 2 output terminal
40	AVDDL	—	Power supply terminal (+5V) (for L-ch side D/A converter section, analog system)
41	L1	O	L-ch PLM signal 1 output terminal
42	VDD2	—	Power supply terminal (+5V) (for L-ch side D/A converter section, digital system)
43	VDD1	—	Power supply terminal (+5V) (for A/D converter section, digital system)

Pin No.	Pin Name	I/O	Function
44	VDD1	—	Power supply terminal (+5V) (for A/D converter section, digital system)
45	VSS1	—	Ground terminal (for A/D converter section, digital system)
46	TEST2	I	Input terminal for the test (fixed at “L”)
47	TEST3	I	Input terminal for the test (fixed at “L”)
48	VSS1	—	Ground terminal (for A/D converter section, digital system)
49	NU	—	Not used (open)
50	NU	—	Not used (open)
51	AVSS	—	Ground terminal (for A/D converter section, analog system)
52	LVDD	—	Power supply terminal (+5V) (for A/D converter section, buffer system)
53	LVSS	—	Ground terminal (for A/D converter section, buffer system)
54	REFO	O	Reference voltage (+3.3V) output terminal (for A/D converter section)
55	INLM	I	L-ch analog signal (–) input terminal
56	INLP	I	L-ch analog signal (+) input terminal

• **POWER BOARD IC700 μ PD78058GC-299-3B9 (MASTER CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	NC	I	Not used (fixed at "L")
2	MD RESET	O	System reset signal output to the mechanism controller (IC100) "L": reset For several hundreds msec. after the power supply rises, "L" is output, then it changes to "H"
3	NC	I	Not used (fixed at "L")
4	AVSS	—	Ground terminal (for A/D converter)
5	NC	I	Not used (fixed at "L")
6	NC	I	Not used (fixed at "L")
7	AVREF1	I	Reference voltage input terminal (+5V) (for D/A converter)
8	DATA IN	I	UART data input from the mechanism controller (IC100)
9	DATA OUT	O	UART data output to the mechanism controller (IC100)
10	CTS	I	UART data reception request signal input from the mechanism controller (IC100)
11	RTS	O	UART data transmission request signal output to the mechanism controller (IC100)
12	SDATA	O	Serial data output to the fluorescent indicator tube driver (IC901)
13	SCK	O	Serial data transfer clock signal output to the fluorescent indicator tube driver (IC901)
14	CS	O	Chip enable signal output to the fluorescent indicator tube driver (IC901)
15	REST	O	Forced reset signal output to the fluorescent indicator tube driver (IC901) "L": forced reset
16 to 20	NC	I	Not used (fixed at "L")
21	ST VER0	I	Tuner destination selected terminal US, Canadian, AEP, UK models: fixed at "H" E, Singapore, Malaysia, Hong Kong models: fixed at "L"
22	ST VER1	I	Tuner destination selected terminal (fixed at "L" in this set)
23	ST VER2	I	Tuner destination selected terminal AEP, UK models: fixed at "L" Except AEP, UK models: fixed at "H"
24 to 26	NC	I	Not used (fixed at "L")
27	YB-DATA0	I/O	Two-way data bus with the micro-computer on CDP-M11C (CD player system)
28	YB-DATA1	I/O	
29	YB-DATA2	I/O	
30	YB-DATA3	I/O	
31	LED1	O	REC indication LED (D911) drive signal output "L": LED on
32	LED0	O	CD SYNC indication LED (D910) drive signal output "L": LED on
33	VSS	—	Ground terminal
34	ST POWER	O	Power control signal output for the tuner circuit "L": tuner power on
35	SYS POWER	O	Power control signal output for main system "L": power on, "H": standby
36	MD REC	O	-6 dB attenuate control signal output for the MD analog input "L" active
37	AUX OFF	O	Control signal output to the output circuit in MD recording mode Off in TAPE mode
38	MUTE1	O	Line mute control signal output "H": mute on
39	MUTE2	O	Line mute control signal output "H": mute on
40	NC	I	Not used (fixed at "L")
41	NC	I	Not used (fixed at "L")
42	STEREO	I	STEREO indicate signal input from the FM/AM (MW) tuner unit (TB101)
43	TUNED	I	TUNED indicate signal input from the FM/AM (MW) tuner unit (TB101)
44	CE	O	PLL chip enable output to the FM/AM (MW) tuner unit (TB101)
45	CLOCK	O	PLL serial data transfer clock signal output to the FM/AM (MW) tuner unit (TB101)

Pin No.	Pin Name	I/O	Function
46	DATA OUT	O	PLL serial data output to the FM/AM (MW) tuner unit (TB101)
47	DATA IN	I	PLL serial data input from the FM/AM (MW) tuner unit (TB101)
48	DBFB	O	DBFB on/off selection signal output to the DBFB circuit "L": DBFB on, "H": DBFB off
49	DBFB 1/2	O	DBFB 1/2 mode selection signal output to the DBFB circuit "L": DBFB mode 2, "H": DBFB mode 1
50	SURR	O	Surround system on/off selection signal output to the surround circuit "L": surround on, "H": surround off
51	SURR 1/2	O	Surround system 1/2 mode selection signal output to the surround circuit "L": surround mode 2, "H": surround mode 1
52	FUNC B	O	Function selection signal output to the function switch (IC601) *1
53	FUNC A	O	Function selection signal output to the function switch (IC601) *1
54	NC	I	Not used (fixed at "L")
55	VOL-LATCH	O	Serial latch signal output to the electrical volume (IC640)
56	VOL-CLOCK	O	Serial data transfer clock signal output to the electrical volume (IC640)
57	VOL-DATA	O	Serial data output to the electrical volume (IC640)
58	SIRCS	I	Sircs signal input from the remote control receiver (IC910)
59	AC-DET	I	AC off detection signal input from the reset signal generator (IC850)
60	RST	I	Reset signal input from the reset signal generator (IC850) "L": reset
61	AUB IN	I	Audio bus signal input terminal Not used in this set
62	AUB OUT	O	Audio bus signal output terminal Not used in this set
63	YB-CLOCK	O	Data transfer clock signal output to the micro-computer on CDP-M11C (CD player system)
64	YB-READY	I/O	Ready signal in/out terminal with the micro-computer on CDP-M11C (CD player system)
65	NC	I	Not used (fixed at "L")
66	NC	I	
67	NC	I	
68	VDD	—	Power supply terminal (+5V)
69	X2	O	Main system clock output terminal (5 MHz)
70	X1	I	Main system clock input terminal (5 MHz)
71	GND	—	Ground terminal
72	XT2	O	Sub system clock output terminal (32.768 kHz)
73	XT1	I	Sub system clock input terminal (32.768 kHz)
74	AVDD	—	Power supply terminal (+5V) (for A/D converter)
75	AVREF0	I	Reference voltage input terminal (+5V) (for A/D converter)
76	NC	I	Not used (fixed at "L")
77	KEY1	I	Key input terminal (A/D input) CUE/TUNING +, NO EDIT, YES, SCROLL, DISPLAY, REC, CD SYNC, VOL -/+ keys input (S919, S914 to S911, S915 to S918)
78	KEY0	I	Key input terminal (A/D input) POWER, PLAY/PAUSE, STOP, BAND, REVIEW/TUNING -, FUNCTION, EJECT keys input (S910, S901 to S906)
79	NC	I	Not used (fixed at "L")
80	NC	I	Not used (fixed at "L")

*1

Terminal \ Function	MD	CD	TUNER	TAPE
FUNC B (pin ⑤2)	"L"	"L"	"H"	"H"
FUNC A (pin ⑤3)	"L"	"H"	"L"	"H"

SECTION 7

EXPLODED VIEWS

NOTE:

- Color Indication of Appearance Parts

Example:

KNOB, BALANCE (WHITE) . . . (RED)

Parts Color Cabinet's Color

- Abbreviation



HK: Hong Kong MY: Malaysia

SP : Singapore

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.

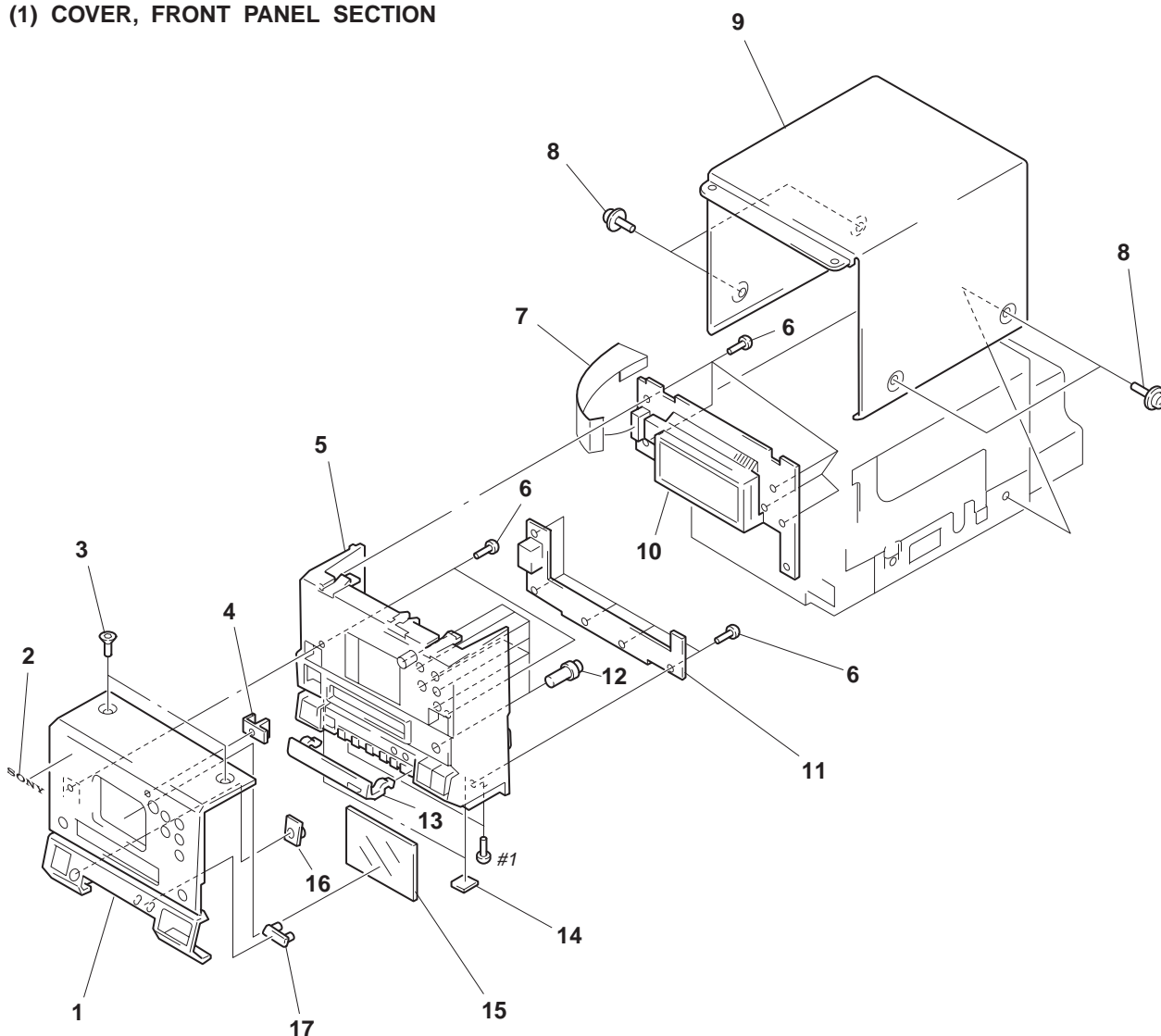
- Hardware (# mark) list is given in the last of the electrical parts list.

The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque sont critiques pour la sécurité.

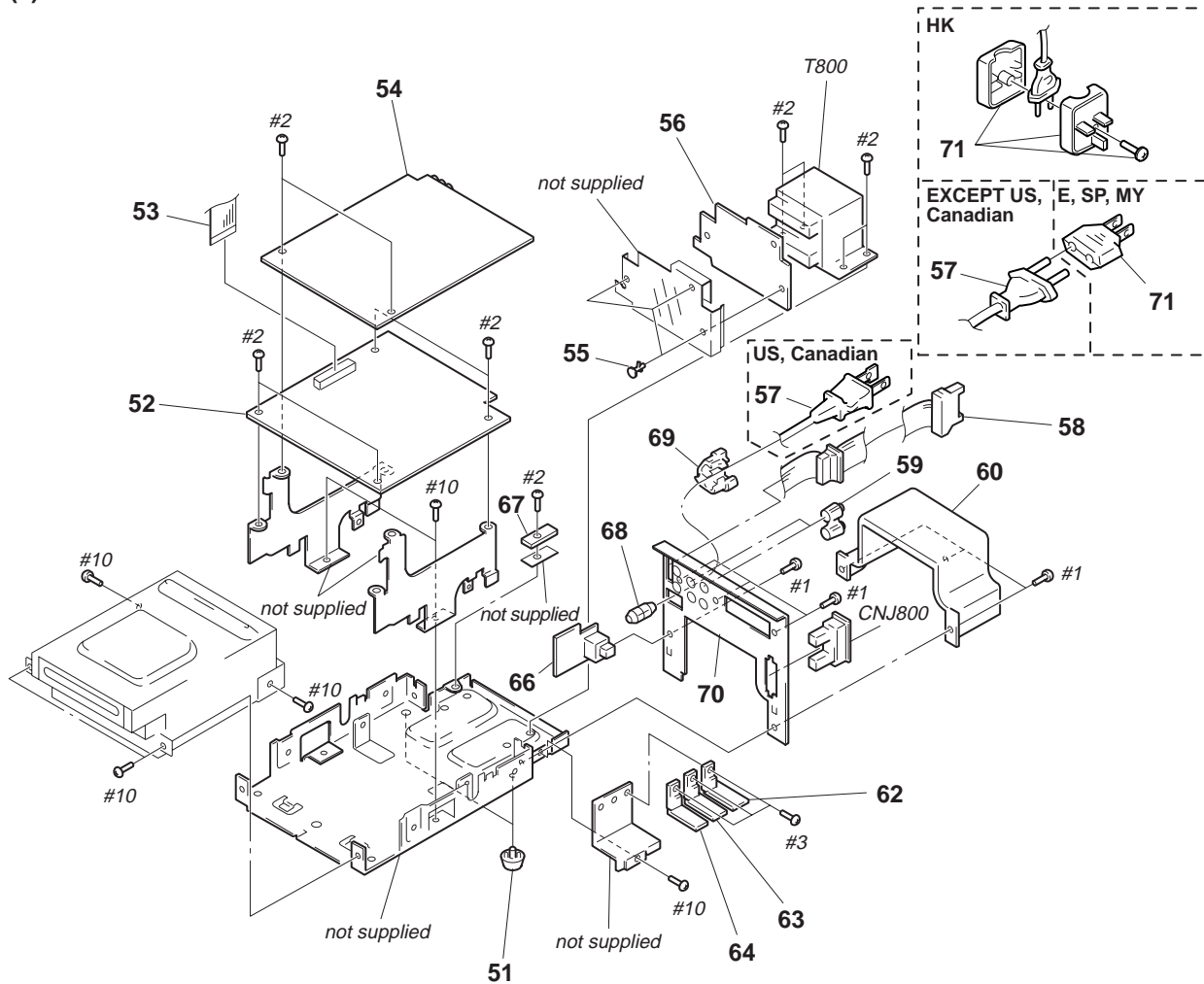
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) COVER, FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-986-543-01	PANEL (AL), FRONT		* 10	A-4392-194-A	DISPLAY BOARD, COMPLETE	
2	4-942-636-21	EMBLEM (NO. 3.5), SONY		* 11	1-663-485-11	SWITCH BOARD	
3	4-975-365-01	SCREW (ALUMINUM)		12	4-986-551-01	BUTTON (PLAY)	
4	4-986-546-01	INDICATOR (PLAY)		13	X-4947-774-1	LID ASSY	
5	X-4947-787-1	PANEL ASSY, FRONT		14	4-986-564-01	CUSHION (FOOT)	
6	4-951-620-01	SCREW (2.6X8), +BVTP		15	4-986-545-01	PLATE (WINDOW), INDICATION	
7	1-777-711-11	WIRE (FLAT TYPE) (17 CORE)		16	4-986-548-01	FILTER (REMOTE CONTROL)	
8	3-363-099-51	SCREW (CASE 3 TP2)		17	4-986-547-01	INDICATOR (REC)	
9	4-975-358-11	COVER					

(2) CHASSIS SECTION

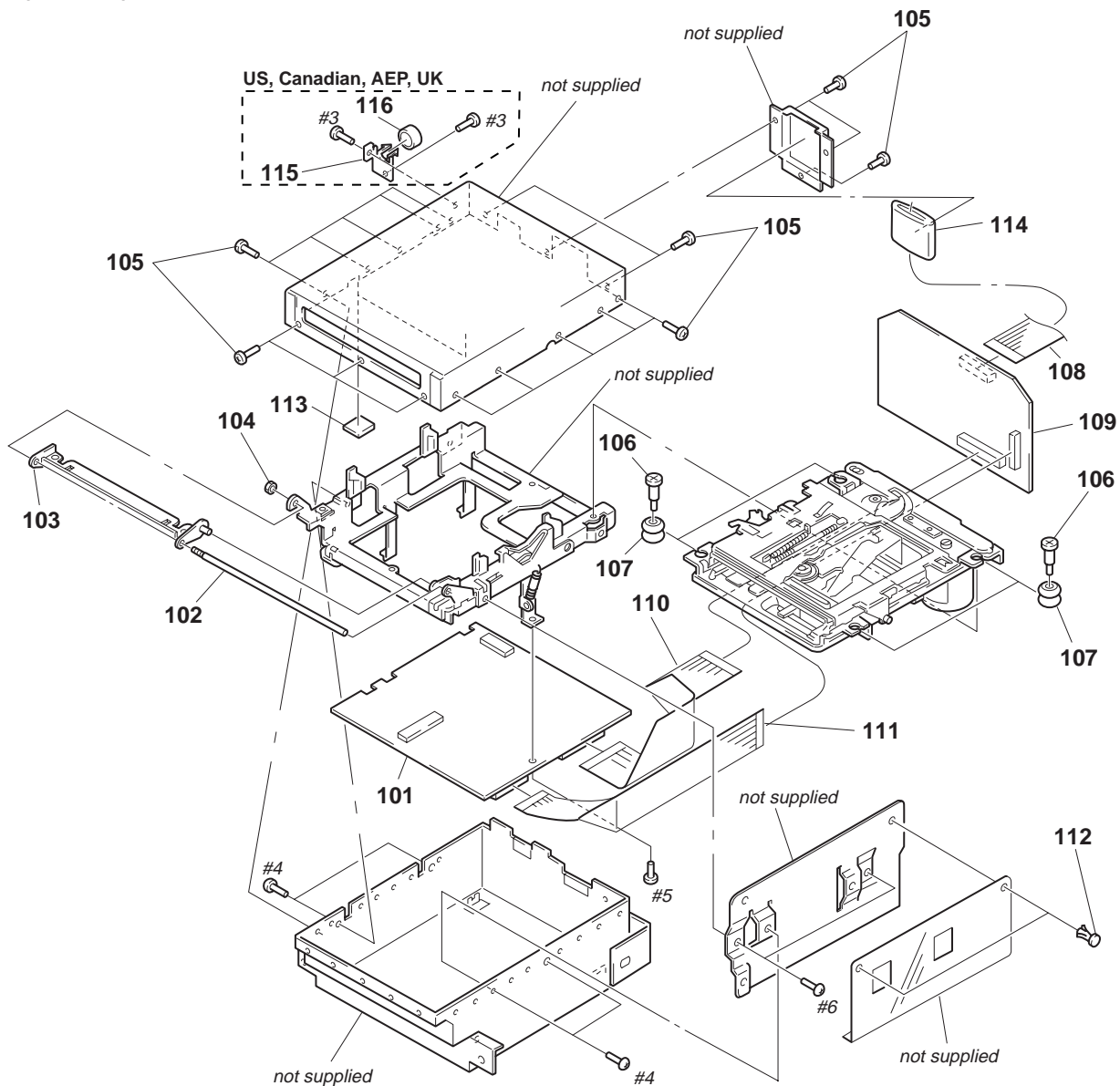


The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

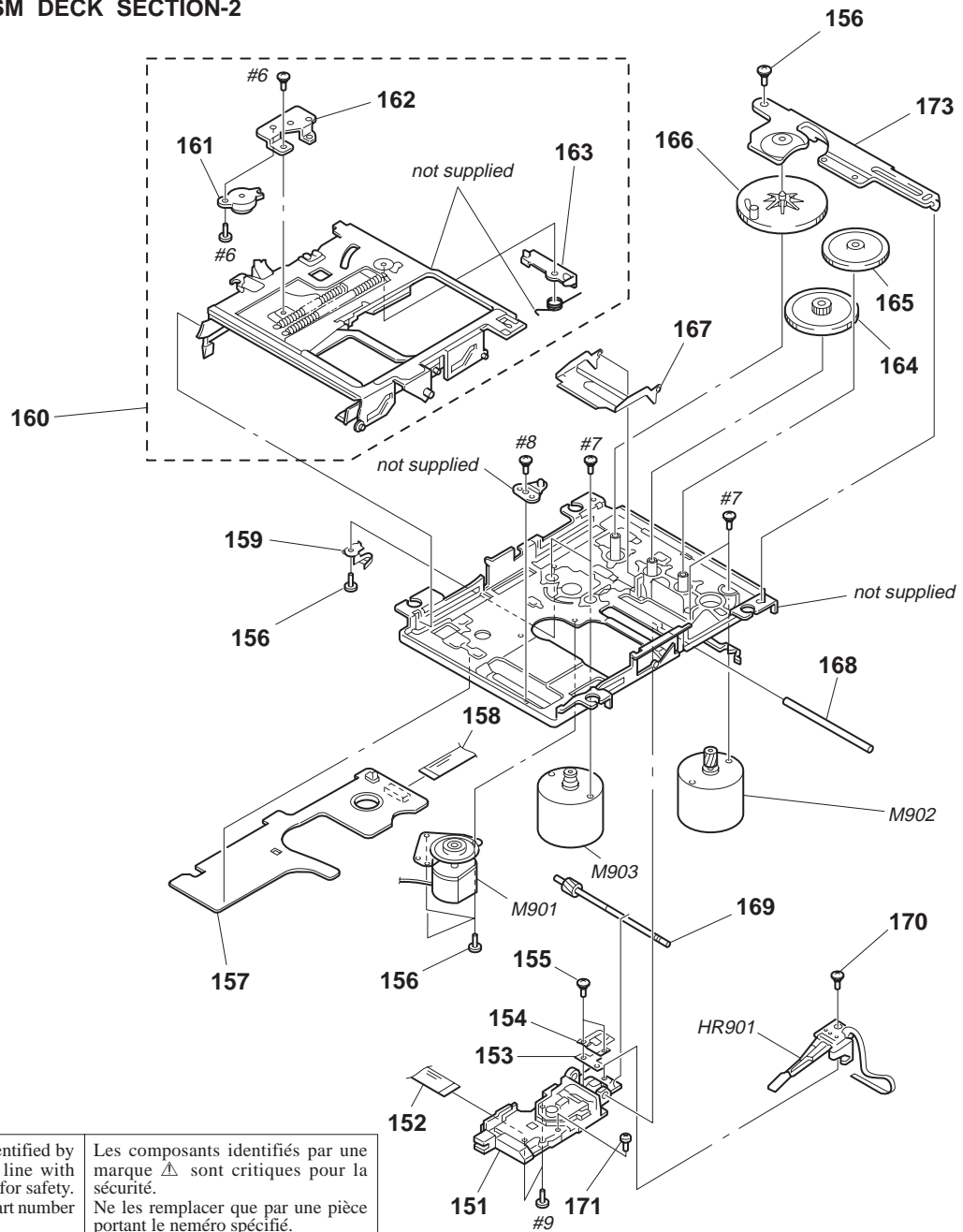
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	51	4-965-822-01	FOOT	* 66	1-663-490-11	CONNECTOR BOARD	
* 52	A-4392-182-A	POWER BOARD, COMPLETE (AEP, UK)		* 67	1-664-636-11	POSISTOR BOARD	
* 52	A-4392-184-A	POWER BOARD, COMPLETE (E, HK, SP, MY)		68	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
* 52	A-4398-213-A	POWER BOARD, COMPLETE (US, Canadian)		* 69	3-703-244-00	BUSHING (2104), CORD	
53	1-777-766-11	WIRE (FLAT TYPE) (27 CORE)				(EXCEPT US, Canadian)	
* 54	A-4392-187-A	PRE BOARD, COMPLETE (AEP, UK)		* 69	3-703-571-11	BUSHING (S) (4516), CORD (US, Canadian)	
* 54	A-4392-188-A	PRE BOARD, COMPLETE (E, HK, SP, MY)		* 70	4-986-560-11	PANEL, BACK (AEP, UK)	
* 54	A-4398-215-A	PRE BOARD, COMPLETE (US, Canadian)		* 70	4-986-560-21	PANEL, BACK (E, HK, SP, MY)	
55	3-531-576-11	RIVET		* 70	4-986-560-31	PANEL, BACK (US, Canadian)	
* 56	1-663-489-11	TRANSFORMER BOARD		Δ 71	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
Δ 57	1-776-060-11	CORD, POWER (EXCEPT US, Canadian)		Δ 71	1-569-008-11	ADAPTOR, CONVERSION 2P (E, SP, MY)	
Δ 57	1-782-242-11	CORD, POWER (POLAR. SPT-1)(US, Canadian)		Δ CNJ800	1-526-794-11	OUTLET, AC (AC OUTLET)	
58	1-777-659-11	CORD (WITH CONNECTOR)				(EXCEPT US, Canadian)	
* 59	4-977-364-01	COVER (PIN JACK 2P)		Δ CNJ800	1-526-882-00	OUTLET, AC (AC OUTLET)(US, Canadian)	
* 60	4-986-561-01	COVER (BACK PANEL)		Δ T800	1-429-874-11	TRANSFORMER, POWER (US, Canadian)	
* 62	1-663-486-11	REGULATOR BOARD		Δ T800	1-429-875-11	TRANSFORMER, POWER (E, HK, SP, MY)	
* 63	1-664-634-11	REGULATOR (2) BOARD		Δ T800	1-429-876-11	TRANSFORMER, POWER (AEP, UK)	
* 64	1-664-635-11	REGULATOR (3) BOARD					

(3) MECHANISM DECK SECTION-1 (MDM-3C)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 101	A-4699-092-A	BD BOARD, COMPLETE		* 109	A-4398-223-A	DIGITAL BOARD, COMPLETE	
102	4-987-736-01	SHAFT (SHUTTER)		110	1-782-052-11	WIRE (FLAT TYPE) (29 CORE)	
103	X-4947-825-1	SHUTTER ASSY		111	1-777-644-11	WIRE (FLAT TYPE) (19 CORE)	
104	4-986-959-01	WASHER, STOPPER		112	3-531-576-11	RIVET	
105	4-981-148-01	SCREW (M1.7X2) (B TITE)		113	4-987-723-01	CUSHION (SLIDER)	
106	4-628-167-01	SCREW, STEP		114	1-500-422-11	BEAD, FERRITE	
107	4-987-327-01	INSULATOR		115	4-991-168-01	COVER (FERRITE) (US, Canadian, AEP, UK)	
108	1-782-018-11	WIRE (FLAT TYPE) (19 CORE)		116	1-543-860-11	CORE, FERRITE (US, Canadian, AEP, UK)	

**(4) MECHANISM DECK SECTION-2
(MDM-3C)**



<p>The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Δ 151	8-583-028-02	OPTICAL PICK-UP KMS-260AJ1N		164	4-979-898-01	GEAR (LB)	
152	1-660-966-11	OP RALAY FLEXIBLE BOARD		165	4-979-899-01	GEAR (LC)	
153	4-987-061-01	SPACER (RACK)		166	4-979-897-01	GEAR (LA)	
154	4-963-914-02	RACK (INSERTER)		167	4-979-885-01	LEVER (HEAD UP)	
155	3-366-890-11	SCREW (M1.4)		168	4-984-556-01	SHAFT (MAIN SHAFT)	
156	3-342-375-11	SCREW (M1.7X1.4), SPECIAL		169	A-3304-200-A	SCREW ASSY, LEAD	
* 157	1-661-774-11	SW BOARD		170	4-988-560-01	SCREW (+P 1.7X6)	
158	1-777-517-11	WIRE (FLAT TYPE) (15 CORE)		171	4-955-841-11	SCREW	
159	4-979-906-11	SPRING (LEAD SCREW)		173	4-979-890-11	RETAINER (GEAR)	
160	A-4672-138-A	SLIDER ASSY, COMPLETE		HR901	1-500-396-11	HEAD, OVER WRITE	
161	3-953-235-01	DAMPER, OIL		M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
* 162	4-983-439-01	BRACKET (DAMPER)		M902	A-4672-133-A	MOTOR ASSY, SLED	
* 163	4-983-437-01	SLIDER (CAM)		M903	A-4672-134-A	MOTOR ASSY, LOADING	

SECTION 8 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- **Abbreviation**
HK : Hong Kong
MY : Malaysia
SP : Singapore

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- **SEMICONDUCTORS**
In each case, u: μ , for example:
uA. . . : μ A. . . uPA. . . : μ PA. . .
uPB. . . : μ PB. . . uPC. . . : μ PC. . .
uPD. . . : μ PD. . .
- **CAPACITORS**
uF: μ F
- **COILS**
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
*	A-4699-092-A	BD BOARD, COMPLETE *****				C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
		< CAPACITOR >				C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
						C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
						C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
						C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C101	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	C167	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C168	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	C169	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C104	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	C182	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C183	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C184	1-107-836-11	ELECT CHIP	22uF	20%	8V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C187	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V	C188	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C191	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C195	1-164-346-11	CERAMIC CHIP	1uF		16V
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C196	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C119	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	C197	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V			< CONNECTOR >			
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V	CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P			
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CN102	1-778-461-11	CONNECTOR, FFC/FPC 29P			
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CN103	1-778-460-11	CONNECTOR, FFC/FPC 19P			
C127	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CN104	1-766-898-21	HOUSING, CONNECTOR (PC BOARD) 4P			
C128	1-164-232-11	CERAMIC CHIP	0.01uF		50V	CN106	1-770-698-11	CONNECTOR, FFC/FPC 15P			
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	CN110	1-774-731-21	PIN, CONNECTOR (PC BOARD) 5P			
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V			< DIODE >			
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	D101	8-719-988-62	DIODE 1SS355			
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	D181	8-719-046-86	DIODE F1J6TP			
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	D183	8-719-046-86	DIODE F1J6TP			
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V			< IC/TRANSISTOR >			
C135	1-163-038-00	CERAMIC CHIP	0.1uF		25V	IC101	8-752-074-77	IC CXA2523R			
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	IC103	8-729-903-10	TRANSISTOR FMW1			
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V	IC121	8-752-378-54	IC CXD2650R			
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	IC122	8-759-234-20	IC TC7S08F			
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	IC123	8-759-242-70	IC TC7WU04F			
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	IC152	8-759-430-25	IC BH6511FS			
C146	1-163-038-00	CERAMIC CHIP	0.1uF		25V	IC171	8-759-428-58	IC XL24C01AF-E2			
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V						
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V						
C153	1-164-232-11	CERAMIC CHIP	0.01uF		50V						
C156	1-163-038-00	CERAMIC CHIP	0.1uF		25V						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC181	8-759-095-65	IC TC74ACT540FS		R143	1-216-073-00	METAL CHIP 10K 5%	1/10W
IC192	8-759-426-95	IC L88MS33T-TL		R144	1-216-025-00	METAL CHIP 100 5%	1/10W
		< COIL >		R146	1-216-037-00	METAL CHIP 330 5%	1/10W
L101	1-414-235-11	INDUCTOR, FERRITE BEAD		R147	1-216-025-00	METAL CHIP 100 5%	1/10W
L102	1-414-235-11	INDUCTOR, FERRITE BEAD		R148	1-216-045-00	METAL CHIP 680 5%	1/10W
L103	1-414-235-11	INDUCTOR, FERRITE BEAD		R150	1-216-295-00	CONDUCTOR, CHIP (2012)	
L105	1-414-235-11	INDUCTOR, FERRITE BEAD		R158	1-216-097-00	METAL CHIP 100K 5%	1/10W
L106	1-414-235-11	INDUCTOR, FERRITE BEAD		R159	1-216-097-00	METAL CHIP 100K 5%	1/10W
L121	1-414-235-11	INDUCTOR, FERRITE BEAD		R161	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
L122	1-414-235-11	INDUCTOR, FERRITE BEAD		R162	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
L151	1-412-622-51	INDUCTOR 10uH		R163	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
L152	1-412-622-51	INDUCTOR 10uH		R164	1-216-045-00	METAL CHIP 680 5%	1/10W
L153	1-412-039-51	INDUCTOR CHIP 100uH		R165	1-216-097-00	METAL CHIP 100K 5%	1/10W
L154	1-412-039-51	INDUCTOR CHIP 100uH		R166	1-220-149-11	METAL CHIP 2.2 10%	1/2W
L161	1-414-235-11	INDUCTOR, FERRITE BEAD		R167	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
L162	1-414-235-11	INDUCTOR, FERRITE BEAD		R169	1-219-724-11	METAL CHIP 1 1%	1/4W
		< TRANSISTOR >		R170	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q101	8-729-403-35	TRANSISTOR UN5113		R171	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR		R172	1-216-295-00	CONDUCTOR, CHIP (2012)	
Q103	8-729-014-04	TRANSISTOR RN1307-TE85L		R173	1-216-121-00	METAL CHIP 1M 5%	1/10W
Q104	8-729-014-04	TRANSISTOR RN1307-TE85L		R175	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
Q162	8-729-101-07	TRANSISTOR 2SB798-DL		R176	1-216-295-00	CONDUCTOR, CHIP (2012)	
Q163	8-729-403-35	TRANSISTOR UN5113		R177	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
Q180	8-729-907-00	TRANSISTOR DTC114EU		R178	1-216-295-00	CONDUCTOR, CHIP (2012)	
Q181	8-729-018-75	TRANSISTOR 2SJ278MY		R179	1-216-089-00	METAL CHIP 47K 5%	1/10W
Q182	8-729-017-65	TRANSISTOR 2SK1764KY		R180	1-216-073-00	METAL CHIP 10K 5%	1/10W
		< RESISTOR/CHIP CONDUCTOR >		R181	1-216-073-00	METAL CHIP 10K 5%	1/10W
R101	1-216-295-00	CONDUCTOR, CHIP (2012)		R182	1-216-089-00	METAL CHIP 47K 5%	1/10W
R103	1-216-049-00	METAL CHIP 1K 5%	1/10W	R183	1-216-089-00	METAL CHIP 47K 5%	1/10W
R104	1-216-073-00	METAL CHIP 10K 5%	1/10W	R184	1-216-073-00	METAL CHIP 10K 5%	1/10W
R105	1-216-065-00	METAL CHIP 4.7K 5%	1/10W	R185	1-216-073-00	METAL CHIP 10K 5%	1/10W
R106	1-216-133-00	METAL CHIP 3.3M 5%	1/10W	R186	1-216-296-00	CONDUCTOR, CHIP (3216)	
R107	1-216-113-00	METAL CHIP 470K 5%	1/10W	R187	1-216-296-00	CONDUCTOR, CHIP (3216)	
R109	1-216-295-00	CONDUCTOR, CHIP (2012)		R188	1-216-073-00	METAL CHIP 10K 5%	1/10W
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W	R189	1-216-073-00	METAL CHIP 10K 5%	1/10W
R111	1-216-295-00	CONDUCTOR, CHIP (2012)		R190	1-216-073-00	METAL CHIP 10K 5%	1/10W
R112	1-216-089-00	METAL CHIP 47K 5%	1/10W	R195	1-216-295-00	CONDUCTOR, CHIP (2012)	
R113	1-216-049-00	METAL CHIP 1K 5%	1/10W	R196	1-216-295-00	CONDUCTOR, CHIP (2012)	
R115	1-216-049-00	METAL CHIP 1K 5%	1/10W	R198	1-216-295-00	CONDUCTOR, CHIP (2012)	
R117	1-216-113-00	METAL CHIP 470K 5%	1/10W	R199	1-216-295-00	CONDUCTOR, CHIP (2012)	
R120	1-216-025-00	METAL CHIP 100 5%	1/10W	R200	1-216-295-00	CONDUCTOR, CHIP (2012)	
R121	1-216-097-00	METAL CHIP 100K 5%	1/10W	R201	1-216-295-00	CONDUCTOR, CHIP (2012)	
R123	1-216-033-00	METAL CHIP 220 5%	1/10W	R202	1-216-295-00	CONDUCTOR, CHIP (2012)	
R124	1-216-025-00	METAL CHIP 100 5%	1/10W	R502	1-216-295-00	CONDUCTOR, CHIP (2012)	
R125	1-216-025-00	METAL CHIP 100 5%	1/10W	R504	1-216-295-00	CONDUCTOR, CHIP (2012)	
R127	1-216-025-00	METAL CHIP 100 5%	1/10W	*****			
R131	1-216-073-00	METAL CHIP 10K 5%	1/10W	* 1-663-490-11	CONNECTOR BOARD	*****	
R132	1-216-097-00	METAL CHIP 100K 5%	1/10W		< CAPACITOR >		
R133	1-216-117-00	METAL CHIP 680K 5%	1/10W	C890	1-124-234-00	ELECT 22uF 20%	16V
R134	1-216-049-00	METAL CHIP 1K 5%	1/10W	C891	1-165-319-11	CERAMIC CHIP 0.1uF	50V
R135	1-216-061-00	METAL CHIP 3.3K 5%	1/10W		< CONNECTOR >		
R136	1-216-049-00	METAL CHIP 1K 5%	1/10W	CN890	1-506-468-11	PIN, CONNECTOR 3P	
R137	1-216-025-00	METAL CHIP 100 5%	1/10W				
R140	1-216-029-00	METAL CHIP 150 5%	1/10W				
R141	1-216-295-00	CONDUCTOR, CHIP (2012)					
R142	1-216-073-00	METAL CHIP 10K 5%	1/10W				

CONNECTOR

DIGITAL

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
IC890	8-749-012-70	< IC >					C254	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
		IC GP1F38R (DIGITAL IN)	C255	1-163-117-00	CERAMIC CHIP	100PF	5%	50V					
			C256	1-163-001-11	CERAMIC CHIP	220PF	10%	50V					
			C257	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V					
L890	1-412-332-41	< COIL >					C258	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
		INDUCTOR 2.2uH	C259	1-163-113-00	CERAMIC CHIP	68PF	5%	50V					
			C260	1-163-239-11	CERAMIC CHIP	33PF	5%	50V					
			C261	1-163-239-11	CERAMIC CHIP	33PF	5%	50V					
*	A-4398-223-A	DIGITAL BOARD, COMPLETE					C262	1-163-253-11	CERAMIC CHIP	120PF	5%	50V	
		*****					C263	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
		< CAPACITOR >					C300	1-126-395-11	ELECT	22uF	20%	16V	
		C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V						
C10	1-126-204-11	ELECT CHIP	47uF	20%	16V	C302	1-163-031-11	CERAMIC CHIP	0.01uF		50V		
C11	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C303	1-126-204-11	ELECT CHIP	47uF	20%	16V		
C12	1-164-346-11	CERAMIC CHIP	1uF		16V	C304	1-126-204-11	ELECT CHIP	47uF	20%	16V		
C13	1-164-346-11	CERAMIC CHIP	1uF		16V	C305	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C15	1-164-346-11	CERAMIC CHIP	1uF		16V	C306	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C20	1-126-204-11	ELECT CHIP	47uF	20%	16V	C307	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		
C21	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	C309	1-126-204-11	ELECT CHIP	47uF	20%	16V		
C22	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	C310	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C47	1-126-204-11	ELECT CHIP	47uF	20%	16V	C311	1-126-204-11	ELECT CHIP	47uF	20%	16V		
C60	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C312	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C61	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C313	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C62	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C314	1-126-204-11	ELECT CHIP	47uF	20%	16V		
C66	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C315	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C100	1-164-346-11	CERAMIC CHIP	1uF		16V	C316	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V		
C102	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	C317	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V		
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C318	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C104	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C319	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C105	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	C320	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C106	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C361	1-164-505-11	CERAMIC CHIP	2.2uF		16V		
C107	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C362	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C365	1-164-505-11	CERAMIC CHIP	2.2uF		16V		
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C366	1-164-505-11	CERAMIC CHIP	2.2uF		16V		
C112	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C367	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V		
C113	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C380	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C123	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C381	1-163-031-11	CERAMIC CHIP	0.01uF		50V		
C130	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	C398	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C131	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	C399	1-163-239-11	CERAMIC CHIP	33PF	5%	50V		
C133	1-163-038-00	CERAMIC CHIP	0.1uF		25V	< CONNECTOR >							
C200	1-126-204-11	ELECT CHIP	47uF	20%	16V	CN8	1-778-998-21	PIN, CONNECTOR (PC BOARD) 3P					
C201	1-126-204-11	ELECT CHIP	47uF	20%	16V	CN100	1-778-691-11	CONNECTOR, FFC/FPC 19P					
C202	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CN102	1-766-942-11	CONNECTOR, FFC/FPC 29P					
C203	1-126-395-11	ELECT	22uF	20%	16V	* CN201	1-770-153-11	PIN, CONNECTOR (PC BOARD) 8P					
C204	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CN202	1-778-691-11	CONNECTOR, FFC/FPC 19P					
C205	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	< DIODE >							
C206	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	D10	8-719-016-74	DIODE 1SS352					
C207	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	D11	8-719-016-74	DIODE 1SS352					
C208	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	D12	8-719-016-74	DIODE 1SS352					
C209	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	D15	8-719-016-74	DIODE 1SS352					
C210	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	D20	8-719-016-74	DIODE 1SS352					
C211	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	D101	8-719-016-74	DIODE 1SS352					
C212	1-163-253-11	CERAMIC CHIP	120PF	5%	50V	D200	8-719-914-42	DIODE DA204K					
C213	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	D251	8-719-914-42	DIODE DA204K					
C250	1-126-204-11	ELECT CHIP	47uF	20%	16V	< IC >							
C251	1-126-204-11	ELECT CHIP	47uF	20%	16V	IC10	8-759-426-95	IC L88MS33T-TL					
C252	1-163-038-00	CERAMIC CHIP	0.1uF		25V								
C253	1-126-395-11	ELECT	22uF	20%	16V								

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC100	8-759-463-76	IC RU8X12MF-0012		R122	1-216-073-00	METAL CHIP 10K 5%	1/10W
IC105	8-759-233-66	IC TC74HCT04AF		R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
IC201	8-759-352-59	IC CXA8054M		R124	1-216-073-00	METAL CHIP 10K 5%	1/10W
IC202	8-759-426-99	IC CXD8607N-T6		R127	1-216-073-00	METAL CHIP 10K 5%	1/10W
IC203	8-759-636-55	IC M5218AFP		R128	1-216-295-00	CONDUCTOR, CHIP (2012)	
IC204	8-759-636-55	IC M5218AFP		R129	1-216-295-00	CONDUCTOR, CHIP (2012)	
IC361	8-759-040-83	IC BA6287F					
IC380	8-759-243-19	IC TC7SU04F		R131	1-216-097-00	METAL CHIP 100K 5%	1/10W
< COIL >				R132	1-216-097-00	METAL CHIP 100K 5%	1/10W
L10	1-412-332-41	INDUCTOR 2.2uH		R134	1-216-097-00	METAL CHIP 100K 5%	1/10W
L20	1-409-556-11	COIL, CHOKE 47uH		R135	1-216-097-00	METAL CHIP 100K 5%	1/10W
L200	1-412-332-41	INDUCTOR 2.2uH		R136	1-216-073-00	METAL CHIP 10K 5%	1/10W
L300	1-412-352-41	INDUCTOR 100uH					
L301	1-412-352-41	INDUCTOR 100uH		R139	1-216-073-00	METAL CHIP 10K 5%	1/10W
L302	1-414-597-11	INDUCTOR, FERRITE BEAD		R141	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
L303	1-414-231-21	INDUCTOR, FERRITE BEAD		R143	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
L305	1-550-907-21	BEAD, FERRITE (CHIP)		R144	1-216-025-00	METAL CHIP 100 5%	1/10W
L380	1-414-230-11	INDUCTOR, FERRITE BEAD		R145	1-216-025-00	METAL CHIP 100 5%	1/10W
L381	1-414-597-11	INDUCTOR, FERRITE BEAD					
< TRANSISTOR >				R150	1-216-129-00	METAL CHIP 2.2M 5%	1/10W
Q106	8-729-421-19	TRANSISTOR UN2213		R151	1-216-049-00	METAL CHIP 1K 5%	1/10W
Q108	8-729-424-18	TRANSISTOR UN2113-TX		R153	1-216-295-00	CONDUCTOR, CHIP (2012)	
Q110	8-729-421-19	TRANSISTOR UN2213		R156	1-216-001-00	METAL CHIP 10 5%	1/10W
Q115	8-729-424-18	TRANSISTOR UN2113-TX		R200	1-550-907-21	BEAD, FERRITE (CHIP)	
Q360	8-729-216-22	TRANSISTOR 2SA1162-G					
Q361	8-729-421-22	TRANSISTOR UN2211		R201	1-216-681-11	METAL CHIP 18K 0.5%	1/10W
< RESISTOR/FERRITE BEAD/CHIP CONDUCTOR >				R202	1-216-683-11	METAL CHIP 22K 0.5%	1/10W
R70	1-216-061-00	METAL CHIP 3.3K 5%	1/10W	R205	1-216-085-00	METAL CHIP 33K 5%	1/10W
R71	1-550-907-21	BEAD, FERRITE (CHIP)		R206	1-216-085-00	METAL CHIP 33K 5%	1/10W
R72	1-550-907-21	BEAD, FERRITE (CHIP)		R207	1-216-081-00	METAL CHIP 22K 5%	1/10W
R73	1-216-061-00	METAL CHIP 3.3K 5%	1/10W				
R74	1-216-295-00	CONDUCTOR, CHIP (2012)		R208	1-216-081-00	METAL CHIP 22K 5%	1/10W
R75	1-550-907-21	BEAD, FERRITE (CHIP)		R209	1-216-093-00	METAL CHIP 68K 5%	1/10W
R76	1-550-907-21	BEAD, FERRITE (CHIP)		R210	1-216-093-00	METAL CHIP 68K 5%	1/10W
R77	1-550-907-21	BEAD, FERRITE (CHIP)		R211	1-216-077-00	METAL CHIP 15K 5%	1/10W
R78	1-216-295-00	CONDUCTOR, CHIP (2012)		R212	1-216-077-00	METAL CHIP 15K 5%	1/10W
R79	1-550-907-21	BEAD, FERRITE (CHIP)					
R80	1-550-907-21	BEAD, FERRITE (CHIP)		R213	1-550-907-21	BEAD, FERRITE (CHIP)	
R81	1-550-907-21	BEAD, FERRITE (CHIP)		R250	1-550-907-21	BEAD, FERRITE (CHIP)	
R82	1-216-295-00	CONDUCTOR, CHIP (2012)		R251	1-216-681-11	METAL CHIP 18K 0.5%	1/10W
R83	1-550-907-21	BEAD, FERRITE (CHIP)		R252	1-216-683-11	METAL CHIP 22K 0.5%	1/10W
R84	1-550-907-21	BEAD, FERRITE (CHIP)		R255	1-216-085-00	METAL CHIP 33K 5%	1/10W
R85	1-550-907-21	BEAD, FERRITE (CHIP)					
R100	1-216-121-00	METAL CHIP 1M 5%	1/10W	R256	1-216-085-00	METAL CHIP 33K 5%	1/10W
R104	1-216-073-00	METAL CHIP 10K 5%	1/10W	R257	1-216-081-00	METAL CHIP 22K 5%	1/10W
R105	1-216-073-00	METAL CHIP 10K 5%	1/10W	R258	1-216-081-00	METAL CHIP 22K 5%	1/10W
R106	1-216-073-00	METAL CHIP 10K 5%	1/10W	R259	1-216-093-00	METAL CHIP 68K 5%	1/10W
R107	1-216-073-00	METAL CHIP 10K 5%	1/10W	R260	1-216-093-00	METAL CHIP 68K 5%	1/10W
R108	1-216-073-00	METAL CHIP 10K 5%	1/10W				
R109	1-216-073-00	METAL CHIP 10K 5%	1/10W	R261	1-216-077-00	METAL CHIP 15K 5%	1/10W
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W	R262	1-216-077-00	METAL CHIP 15K 5%	1/10W
R112	1-216-073-00	METAL CHIP 10K 5%	1/10W	R263	1-550-907-21	BEAD, FERRITE (CHIP)	
R113	1-216-073-00	METAL CHIP 10K 5%	1/10W	R290	1-550-907-21	BEAD, FERRITE (CHIP)	
R115	1-216-073-00	METAL CHIP 10K 5%	1/10W	R291	1-550-907-21	BEAD, FERRITE (CHIP)	
R120	1-216-061-00	METAL CHIP 3.3K 5%	1/10W				
R121	1-216-049-00	METAL CHIP 1K 5%	1/10W	R300	1-414-597-11	INDUCTOR, FERRITE BEAD	
				R301	1-216-017-00	METAL CHIP 47 5%	1/10W
				R302	1-216-017-00	METAL CHIP 47 5%	1/10W
				R303	1-216-017-00	METAL CHIP 47 5%	1/10W
				R304	1-216-033-00	METAL CHIP 220 5%	1/10W
				R305	1-216-049-00	METAL CHIP 1K 5%	1/10W
				R306	1-216-049-00	METAL CHIP 1K 5%	1/10W
				R307	1-216-049-00	METAL CHIP 1K 5%	1/10W
				R308	1-216-049-00	METAL CHIP 1K 5%	1/10W
				R309	1-216-029-00	METAL CHIP 150 5%	1/10W
				R310	1-216-033-00	METAL CHIP 220 5%	1/10W
				R311	1-216-121-00	METAL CHIP 1M 5%	1/10W

DIGITAL

DISPLAY

POSISTOR

POWER

Ref. No.	Part No.	Description	Remark
R312	1-216-017-00	METAL CHIP 47 5%	1/10W
R321	1-550-907-21	BEAD, FERRITE (CHIP)	
R361	1-216-025-00	METAL CHIP 100 5%	1/10W
R362	1-216-073-00	METAL CHIP 10K 5%	1/10W
R363	1-216-295-00	CONDUCTOR, CHIP (2012)	
R365	1-216-295-00	CONDUCTOR, CHIP (2012)	
R380	1-216-113-00	METAL CHIP 470K 5%	1/10W
R381	1-216-089-00	METAL CHIP 47K 5%	1/10W
R399	1-216-296-00	CONDUCTOR, CHIP (3216)	
< VIBRATOR >			
X100	1-579-846-21	VIBRATOR, CERAMIC (12 MHz)	
X101	1-760-872-11	VIBRATOR, CRYSTAL (32.768 kHz)	
X200	1-767-286-11	VIBRATOR, CRYSTAL (22 MHz)	

*	A-4392-194-A	DISPLAY BOARD, COMPLETE	*****
*	4-932-810-11	CUSHION (FL)	
*	4-986-572-01	HOLDER (FL TUBE)	
< CAPACITOR >			
C900	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C901	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C902	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C903	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C904	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C905	1-124-234-00	ELECT 22uF 20% 16V	
C906	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C907	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C908	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C909	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C910	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C911	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C930	1-124-234-00	ELECT 22uF 20% 16V	
< CONNECTOR >			
* CN900	1-568-836-11	SOCKET, CONNECTOR 17P	
< COMPOSITION CIRCUIT BLOCK >			
CP900	1-239-081-11	COMPOSITION CIRCUIT BLOCK 220X15	
< DIODE >			
D900	8-719-057-29	LED SML78423C-TP15 (►/■)	
D901	8-719-210-33	DIODE EC10DS2	
D902	8-719-210-33	DIODE EC10DS2	
< FLUORESCENT INDICATOR TUBE >			
FL901	1-517-605-11	INDICATOR TUBE, FLUORESCENT	
< IC >			
IC901	8-759-297-23	IC M66004M8FP	

Ref. No.	Part No.	Description	Remark
< TRANSISTOR >			
Q900	8-729-424-08	TRANSISTOR UN2111	
Q901	8-729-424-08	TRANSISTOR UN2111	
Q902	8-729-421-19	TRANSISTOR UN2213	
< RESISTOR >			
R900	1-216-085-00	METAL CHIP 33K 5%	1/10W
R901	1-216-025-00	METAL CHIP 100 5%	1/10W
R902	1-216-025-00	METAL CHIP 100 5%	1/10W
R903	1-216-025-00	METAL CHIP 100 5%	1/10W
R904	1-216-025-00	METAL CHIP 100 5%	1/10W
R906	1-216-023-00	METAL CHIP 82 5%	1/10W
R911	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R921	1-216-029-00	METAL CHIP 150 5%	1/10W
R930	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R931	1-216-029-00	METAL CHIP 150 5%	1/10W
R932	1-216-033-00	METAL CHIP 220 5%	1/10W
R933	1-216-037-00	METAL CHIP 330 5%	1/10W
R934	1-216-041-00	METAL CHIP 470 5%	1/10W
R935	1-216-049-00	METAL CHIP 1K 5%	1/10W
R936	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
< SWITCH >			
S901	1-554-303-21	SWITCH, TACTILE (►■■)	
S902	1-554-303-21	SWITCH, TACTILE (■)	
S903	1-554-303-21	SWITCH, TACTILE (BAND)	
S904	1-554-303-21	SWITCH, TACTILE (◀◀◀ TUNING -)	
S905	1-554-303-21	SWITCH, TACTILE (FUNCTION)	
S906	1-554-303-21	SWITCH, TACTILE (▲)	
S919	1-554-303-21	SWITCH, TACTILE (►►► TUNING +)	

*	1-664-636-11	POSISTOR BOARD	*****
< CONNECTOR >			
CN830	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P	
< THERMISTOR >			
THP802	1-801-578-11	THERMISTOR, POSITIVE	
THP803	1-801-578-11	THERMISTOR, POSITIVE	

*	A-4398-213-A	POWER BOARD, COMPLETE (US, Canadian)	
*	A-4392-182-A	POWER BOARD, COMPLETE (AEP, UK)	
*	A-4392-184-A	POWER BOARD, COMPLETE (E, HK, SP, MY)	*****
	7-685-871-01	SCREW +BVTT 3X6 (S)	
< LITHIUM BATTERY >			
△ BT801	1-528-739-11	BATTERY, LITHIUM (VL2020 3V)	
< CAPACITOR >			
C700	1-102-958-00	CERAMIC 20PF 5% 50V	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark
C701	1-102-958-00	CERAMIC	20PF	5%	50V	D704	8-719-016-74	DIODE 1SS352	
C702	1-126-933-11	ELECT	100uF	20%	16V				
C703	1-102-129-00	CERAMIC	10000PF	10%	50V	D711	8-719-210-33	DIODE EC10DS2	
C704	1-125-623-11	DOUBLE LAYER	0.22F		5.5V	D810	8-719-210-33	DIODE EC10DS2	
						D811	8-719-210-33	DIODE EC10DS2	
C705	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D812	8-719-210-33	DIODE EC10DS2	
C706	1-164-232-11	CERAMIC CHIP	0.01uF		50V	D813	8-719-210-33	DIODE EC10DS2	
C707	1-164-232-11	CERAMIC CHIP	0.01uF		50V				
C708	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D814	8-719-022-89	DIODE MA8130L	
C709	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D820	8-719-210-33	DIODE EC10DS2	
						D821	8-719-210-33	DIODE EC10DS2	
C710	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D822	8-719-210-33	DIODE EC10DS2	
C711	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D823	8-719-422-58	DIODE MA8062	
C712	1-126-916-11	ELECT	1000uF	20%	6.3V				
C713	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D830	8-719-043-71	DIODE FMB-24	
C803	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D832	8-719-210-39	DIODE EC10QS-04	
						D833	8-719-210-39	DIODE EC10QS-04	
C804	1-165-319-11	CERAMIC CHIP	0.1uF		50V	D850	8-719-016-74	DIODE 1SS352	
C810	1-126-950-11	ELECT	330uF	20%	35V	D851	8-719-016-74	DIODE 1SS352	
C811	1-126-950-11	ELECT	330uF	20%	35V				
C812	1-126-951-11	ELECT	470uF	20%	35V	D852	8-719-016-74	DIODE 1SS352	
C813	1-126-967-11	ELECT	47uF	20%	50V	D853	8-719-210-33	DIODE EC10DS2	
						D870	8-719-016-74	DIODE 1SS352	
C814	1-164-232-11	CERAMIC CHIP	0.01uF		50V	D871	8-719-016-74	DIODE 1SS352	
C815	1-126-933-11	ELECT	100uF	20%	16V	D872	8-719-016-74	DIODE 1SS352	
C816	1-164-232-11	CERAMIC CHIP	0.01uF		50V			< FERRITE BEAD >	
C820	1-126-968-11	ELECT	100uF	20%	50V				
C821	1-126-968-11	ELECT	100uF	20%	50V	FB700	1-414-386-11	INDUCTOR, FERRITE BEAD	
						FB701	1-414-386-11	INDUCTOR, FERRITE BEAD	
C822	1-165-319-11	CERAMIC CHIP	0.1uF		50V	FB702	1-414-386-11	INDUCTOR, FERRITE BEAD	
C823	1-126-965-11	ELECT	22uF	20%	50V	FB703	1-414-386-11	INDUCTOR, FERRITE BEAD	
C824	1-126-965-11	ELECT	22uF	20%	50V	FB704	1-414-386-11	INDUCTOR, FERRITE BEAD	
C830	1-136-161-00	FILM	0.047uF	5%	50V				
C831	1-136-161-00	FILM	0.047uF	5%	50V	FB705	1-414-386-11	INDUCTOR, FERRITE BEAD	
						FB710	1-414-386-11	INDUCTOR, FERRITE BEAD	
C832	1-117-236-11	ELECT	33000uF	+25% -15%	16V	FB711	1-414-386-11	INDUCTOR, FERRITE BEAD	
C833	1-126-016-11	ELECT	4700uF	20%	16V	FB712	1-414-386-11	INDUCTOR, FERRITE BEAD	
C834	1-164-232-11	CERAMIC CHIP	0.01uF		50V	FB713	1-414-386-11	INDUCTOR, FERRITE BEAD	
C835	1-164-232-11	CERAMIC CHIP	0.01uF		50V				
C836	1-126-960-11	ELECT	1uF	20%	50V	FB714	1-414-386-11	INDUCTOR, FERRITE BEAD	
						FB715	1-414-386-11	INDUCTOR, FERRITE BEAD	
C837	1-126-960-11	ELECT	1uF	20%	50V	FB730	1-414-386-11	INDUCTOR, FERRITE BEAD	
C838	1-126-960-11	ELECT	1uF	20%	50V	FB731	1-414-386-11	INDUCTOR, FERRITE BEAD	
C839	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	FB732	1-414-386-11	INDUCTOR, FERRITE BEAD	
C840	1-126-960-11	ELECT	1uF	20%	50V				
C841	1-126-023-11	ELECT	100uF	20%	16V	FB800	1-414-386-11	INDUCTOR, FERRITE BEAD	
						FB801	1-414-386-11	INDUCTOR, FERRITE BEAD	
C842	1-126-023-11	ELECT	100uF	20%	16V	FB802	1-414-386-11	INDUCTOR, FERRITE BEAD	
C845	1-126-768-11	ELECT	2200uF	20%	16V				
				(E, HK, SP, MY)				< IC >	
C850	1-126-966-11	ELECT	33uF	20%	50V				
C851	1-126-960-11	ELECT	1uF	20%	50V	IC700	8-759-441-37	IC uPD78058GC-299-3B9	
		< CONNECTOR >				IC820	8-759-633-42	IC M5293L	
						IC830	8-759-631-40	IC M5294P	
CN802	1-564-510-11	PLUG, CONNECTOR 7P				IC850	8-759-165-80	IC PST600C-T	
* CN803	1-564-711-11	PIN, CONNECTOR (ULTRA SMALL) 9P						< COIL >	
CN805	1-770-067-11	CONNECTOR, FFC/FPC 19P							
* CN806	1-568-836-11	SOCKET, CONNECTOR 17P							
CN807	1-774-280-11	PIN, CONNECTOR 13P				L700	1-412-340-31	INDUCTOR 10uH	
						L860	1-412-344-41	INDUCTOR 22uH	
* CN809	1-568-842-11	SOCKET, CONNECTOR 27P						< TRANSISTOR >	
* CN820	1-564-336-00	PIN, CONNECTOR 2P							
		< DIODE >				Q700	8-729-421-22	TRANSISTOR UN2211	
						Q701	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
D700	8-719-210-33	DIODE EC10DS2				Q702	8-729-421-19	TRANSISTOR UN2213	
D701	8-719-016-74	DIODE 1SS352				Q703	8-729-425-02	TRANSISTOR UN2124	
D702	8-719-016-74	DIODE 1SS352				Q704	8-729-424-18	TRANSISTOR UN2113-TX	
D703	8-719-016-74	DIODE 1SS352							

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
Q800	8-729-801-93	TRANSISTOR	2SD1387			R753	1-216-089-00	METAL CHIP	47K	5%	1/10W (US, Canadian, AEP, UK)
Q810	8-729-232-69	TRANSISTOR	2SK208GR3								
Q811	8-729-209-15	TRANSISTOR	2SD2012			R755	1-216-089-00	METAL CHIP	47K	5%	1/10W (EXCEPT AEP, UK)
Q813	8-729-421-19	TRANSISTOR	UN2213			△ R801	1-212-857-00	FUSIBLE	10	5%	1/4W F
Q870	8-729-141-83	TRANSISTOR	2SB1094-LK			R802	1-216-041-00	METAL CHIP	470	5%	1/10W
Q871	8-729-120-28	TRANSISTOR	2SC1623-L5L6			R803	1-216-089-00	METAL CHIP	47K	5%	1/10W
Q874	8-729-425-02	TRANSISTOR	UN2124			R823	1-216-089-00	METAL CHIP	47K	5%	1/10W
< RESISTOR >						R831	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R700	1-216-001-00	METAL CHIP	10	5%	1/10W	R832	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R701	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R850	1-216-025-00	METAL CHIP	100	5%	1/10W
R702	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R851	1-216-025-00	METAL CHIP	100	5%	1/10W
R703	1-216-001-00	METAL CHIP	10	5%	1/10W	R852	1-216-198-00	METAL CHIP	1K	5%	1/8W
R704	1-216-001-00	METAL CHIP	10	5%	1/10W						
R705	1-216-073-00	METAL CHIP	10K	5%	1/10W	R853	1-216-049-00	METAL CHIP	1K	5%	1/10W
R706	1-216-049-00	METAL CHIP	1K	5%	1/10W	R854	1-216-073-00	METAL CHIP	10K	5%	1/10W
R707	1-216-073-00	METAL CHIP	10K	5%	1/10W	R870	1-216-033-00	METAL CHIP	220	5%	1/10W
R708	1-216-049-00	METAL CHIP	1K	5%	1/10W	R871	1-216-089-00	METAL CHIP	47K	5%	1/10W
R710	1-216-025-00	METAL CHIP	100	5%	1/10W	R872	1-216-049-00	METAL CHIP	1K	5%	1/10W
R711	1-216-025-00	METAL CHIP	100	5%	1/10W	R873	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R712	1-216-025-00	METAL CHIP	100	5%	1/10W	< THERMISTOR >					
R713	1-216-025-00	METAL CHIP	100	5%	1/10W	THP800	1-801-578-11	THERMISTOR, POSITIVE			
R714	1-216-025-00	METAL CHIP	100	5%	1/10W	THP801	1-801-578-11	THERMISTOR, POSITIVE			
R715	1-216-025-00	METAL CHIP	100	5%	1/10W	THP810	1-801-726-11	THERMISTOR, POSITIVE			
R716	1-216-049-00	METAL CHIP	1K	5%	1/10W	< VIBRATOR >					
R717	1-216-049-00	METAL CHIP	1K	5%	1/10W	X700	1-567-098-41	VIBRATOR, CRYSTAL (32.768 kHz)			
R718	1-216-025-00	METAL CHIP	100	5%	1/10W	X701	1-579-233-11	VIBRATOR, CERAMIC (5 MHz)			
R719	1-216-025-00	METAL CHIP	100	5%	1/10W	*****					
R720	1-216-025-00	METAL CHIP	100	5%	1/10W	*	A-4398-215-A	PRE BOARD, COMPLETE (US, Canadian)			
R721	1-216-025-00	METAL CHIP	100	5%	1/10W	*	A-4392-187-A	PRE BOARD, COMPLETE (AEP, UK)			
R722	1-216-025-00	METAL CHIP	100	5%	1/10W	*	A-4392-188-A	PRE BOARD, COMPLETE (E, HK, SP, MY)			
R723	1-216-025-00	METAL CHIP	100	5%	1/10W	*****					
R724	1-216-025-00	METAL CHIP	100	5%	1/10W	< CAPACITOR >					
R725	1-216-025-00	METAL CHIP	100	5%	1/10W	C401	1-163-001-11	CERAMIC CHIP	220PF	10%	50V (EXCEPT AEP, UK)
R726	1-216-025-00	METAL CHIP	100	5%	1/10W	C401	1-163-117-00	CERAMIC CHIP	100PF	5%	50V (AEP, UK)
R727	1-216-025-00	METAL CHIP	100	5%	1/10W	C402	1-163-001-11	CERAMIC CHIP	220PF	10%	50V (EXCEPT AEP, UK)
R728	1-216-025-00	METAL CHIP	100	5%	1/10W	C403	1-126-965-11	ELECT	22uF	20%	50V
R729	1-216-025-00	METAL CHIP	100	5%	1/10W	C404	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
R733	1-216-049-00	METAL CHIP	1K	5%	1/10W	C405	1-126-961-11	ELECT	2.2uF	20%	50V
R734	1-216-049-00	METAL CHIP	1K	5%	1/10W	C406	1-163-181-00	CERAMIC CHIP	100PF	5%	50V (AEP, UK)
R735	1-216-025-00	METAL CHIP	100	5%	1/10W	C410	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
R736	1-216-025-00	METAL CHIP	100	5%	1/10W	C411	1-126-965-11	ELECT	22uF	20%	50V
R737	1-216-025-00	METAL CHIP	100	5%	1/10W	C412	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
R738	1-216-025-00	METAL CHIP	100	5%	1/10W	C413	1-126-965-11	ELECT	22uF	20%	50V
R739	1-216-025-00	METAL CHIP	100	5%	1/10W	C414	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
R740	1-216-025-00	METAL CHIP	100	5%	1/10W	C420	1-126-965-11	ELECT	22uF	20%	50V
R741	1-216-025-00	METAL CHIP	100	5%	1/10W	C421	1-124-465-00	ELECT	0.47uF	20%	50V
R746	1-216-089-00	METAL CHIP	47K	5%	1/10W	C422	1-126-965-11	ELECT	22uF	20%	50V
R747	1-216-037-00	METAL CHIP	330	5%	1/10W						
R748	1-216-025-00	METAL CHIP	100	5%	1/10W						
R750	1-216-089-00	METAL CHIP	47K	5%	1/10W (E, HK, SP, MY)						
R751	1-216-089-00	METAL CHIP	47K	5%	1/10W						
R752	1-216-089-00	METAL CHIP	47K	5%	1/10W (AEP, UK)						

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C423	1-126-965-11	ELECT	22uF 20% 50V			< CONNECTOR >	
C424	1-126-965-11	ELECT	22uF 20% 50V				
C425	1-163-101-00	CERAMIC CHIP	22PF 5% 50V	* CN600	1-564-338-00	PIN, CONNECTOR 4P	
C430	1-136-177-00	FILM	1uF 5% 50V	* CN601	1-568-842-11	SOCKET, CONNECTOR 27P	
C431	1-136-177-00	FILM	1uF 5% 50V	* CN602	1-568-935-11	PIN, CONNECTOR 8P	
				* CN603	1-564-337-00	PIN, CONNECTOR 3P	
C441	1-128-197-11	ELECT	10uF 20% 50V			< DIODE >	
C442	1-126-963-11	ELECT	4.7uF 20% 50V				
C443	1-126-049-11	ELECT	22uF 20% 50V				
C451	1-163-001-11	CERAMIC CHIP	220PF 10% 50V (EXCEPT AEP, UK)	D610	8-719-016-74	DIODE 1SS352	
C451	1-163-117-00	CERAMIC CHIP	100PF 5% 50V (AEP, UK)	D630	8-719-016-74	DIODE 1SS352	
				D690	8-719-420-90	DIODE MA8051-M	
C452	1-163-001-11	CERAMIC CHIP	220PF 10% 50V (EXCEPT AEP, UK)			< FERRITE BEAD >	
C453	1-126-965-11	ELECT	22uF 20% 50V	FB500	1-414-386-11	INDUCTOR, FERRITE BEAD	
C454	1-163-001-11	CERAMIC CHIP	220PF 10% 50V	FB501	1-414-386-11	INDUCTOR, FERRITE BEAD	
C455	1-126-961-11	ELECT	2.2uF 20% 50V	FB502	1-414-386-11	INDUCTOR, FERRITE BEAD	
C456	1-163-181-00	CERAMIC CHIP	100PF 5% 50V (AEP, UK)	FB503	1-414-386-11	INDUCTOR, FERRITE BEAD	
				FB504	1-414-386-11	INDUCTOR, FERRITE BEAD	
C460	1-163-001-11	CERAMIC CHIP	220PF 10% 50V	FB505	1-414-386-11	INDUCTOR, FERRITE BEAD	
C461	1-126-965-11	ELECT	22uF 20% 50V	FB506	1-414-386-11	INDUCTOR, FERRITE BEAD (EXCEPT AEP, UK)	
C462	1-163-001-11	CERAMIC CHIP	220PF 10% 50V	FB506	1-414-597-11	INDUCTOR, FERRITE BEAD (AEP, UK)	
C463	1-126-965-11	ELECT	22uF 20% 50V	FB507	1-414-386-11	INDUCTOR, FERRITE BEAD (EXCEPT AEP, UK)	
C464	1-163-001-11	CERAMIC CHIP	220PF 10% 50V	FB507	1-414-597-11	INDUCTOR, FERRITE BEAD (AEP, UK)	
C470	1-126-965-11	ELECT	22uF 20% 50V	FB508	1-414-386-11	INDUCTOR, FERRITE BEAD	
C471	1-124-465-00	ELECT	0.47uF 20% 50V	FB510	1-414-386-11	INDUCTOR, FERRITE BEAD	
C472	1-126-965-11	ELECT	22uF 20% 50V	FB511	1-414-386-11	INDUCTOR, FERRITE BEAD	
C473	1-126-965-11	ELECT	22uF 20% 50V	FB512	1-414-386-11	INDUCTOR, FERRITE BEAD	
C474	1-126-965-11	ELECT	22uF 20% 50V	FB513	1-414-386-11	INDUCTOR, FERRITE BEAD	
C475	1-163-101-00	CERAMIC CHIP	22PF 5% 50V	FB514	1-414-386-11	INDUCTOR, FERRITE BEAD	
C480	1-136-177-00	FILM	1uF 5% 50V	FB515	1-414-386-11	INDUCTOR, FERRITE BEAD	
C481	1-136-177-00	FILM	1uF 5% 50V	FB516	1-414-386-11	INDUCTOR, FERRITE BEAD	
C491	1-128-197-11	ELECT	10uF 20% 50V	FB517	1-414-386-11	INDUCTOR, FERRITE BEAD	
C492	1-126-963-11	ELECT	4.7uF 20% 50V	FB518	1-414-386-11	INDUCTOR, FERRITE BEAD	
C493	1-126-049-11	ELECT	22uF 20% 50V	FB519	1-216-295-00	CONDUCTOR, CHIP (2012) (EXCEPT AEP, UK)	
C510	1-126-965-11	ELECT	22uF 20% 50V	FB519	1-414-386-11	INDUCTOR, FERRITE BEAD (AEP, UK)	
C511	1-126-963-11	ELECT	4.7uF 20% 50V	FB520	1-216-295-00	CONDUCTOR, CHIP (2012) (EXCEPT AEP, UK)	
C513	1-163-038-00	CERAMIC CHIP	0.1uF 25V	FB520	1-414-386-11	INDUCTOR, FERRITE BEAD (AEP, UK)	
C560	1-126-965-11	ELECT	22uF 20% 50V	FB569	1-216-295-00	CONDUCTOR, CHIP (2012) (EXCEPT AEP, UK)	
C561	1-126-963-11	ELECT	4.7uF 20% 50V	FB569	1-414-386-11	INDUCTOR, FERRITE BEAD (AEP, UK)	
C563	1-163-038-00	CERAMIC CHIP	0.1uF 25V	FB690	1-412-473-21	INDUCTOR, FERRITE BEAD (E, HK, SP, MY)	
C602	1-163-031-11	CERAMIC CHIP	0.01uF 50V			< IC >	
C603	1-163-031-11	CERAMIC CHIP	0.01uF 50V	IC601	8-759-009-06	IC MC14052BF	
C630	1-126-965-11	ELECT	22uF 20% 50V	IC602	8-759-009-06	IC MC14052BF	
C640	1-124-234-00	ELECT	22uF 20% 16V	IC603	8-759-634-51	IC M5218AP	
C641	1-163-031-11	CERAMIC CHIP	0.01uF 50V	IC610	8-759-634-51	IC M5218AP	
C642	1-163-005-11	CERAMIC CHIP	470PF 10% 50V	IC611	8-759-009-06	IC MC14052BF	
C643	1-163-031-11	CERAMIC CHIP	0.01uF 50V	IC630	8-759-634-51	IC M5218AP	
C644	1-124-234-00	ELECT	22uF 20% 16V	IC631	8-759-009-06	IC MC14052BF	
C645	1-163-038-00	CERAMIC CHIP	0.1uF 25V	IC640	8-759-281-42	IC TC9210P	
C646	1-163-038-00	CERAMIC CHIP	0.1uF 25V	IC641	8-759-710-59	IC NJM4580D-D	
C672	1-126-965-11	ELECT	22uF 20% 50V	IC660	8-759-710-59	IC NJM4580D-D	
C673	1-126-965-11	ELECT	22uF 20% 50V	IC680	8-759-008-67	IC MC14066BF	
C680	1-163-031-11	CERAMIC CHIP	0.01uF 50V			< JACK >	
C691	1-163-031-11	CERAMIC CHIP	0.01uF 50V	J600	1-770-890-11	JACK, PIN 6P (OUTPUT, TAPE IN/OUT)	
C692	1-126-934-11	ELECT	220uF 20% 16V			< TRANSISTOR >	
C693	1-163-031-11	CERAMIC CHIP	0.01uF 50V	Q401	8-729-107-43	TRANSISTOR 2SC3624-L18	
C695	1-163-031-11	CERAMIC CHIP	0.01uF 50V				

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
Q402	8-729-107-43	TRANSISTOR	2SC3624-L18				R463	1-216-025-00	METAL CHIP	100	5%	1/10W	
Q420	8-729-107-43	TRANSISTOR	2SC3624-L18				R464	1-216-089-00	METAL CHIP	47K	5%	1/10W	
Q451	8-729-107-43	TRANSISTOR	2SC3624-L18				R465	1-216-049-00	METAL CHIP	1K	5%	1/10W	
Q452	8-729-107-43	TRANSISTOR	2SC3624-L18										
Q470	8-729-107-43	TRANSISTOR	2SC3624-L18				R466	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
Q601	8-729-424-18	TRANSISTOR	UN2113-TX				R467	1-216-073-00	METAL CHIP	10K	5%	1/10W	
Q602	8-729-216-22	TRANSISTOR	2SA1162-G				R470	1-216-049-00	METAL CHIP	1K	5%	1/10W	
Q603	8-729-421-19	TRANSISTOR	UN2213				R471	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
Q680	8-729-424-18	TRANSISTOR	UN2113-TX				R472	1-216-105-00	METAL CHIP	220K	5%	1/10W	
Q681	8-729-424-18	TRANSISTOR	UN2113-TX				R473	1-216-041-00	METAL CHIP	470	5%	1/10W	
< RESISTOR >							R474	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R401	1-216-041-00	METAL CHIP	470	5%	1/10W		R475	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R402	1-216-053-00	METAL CHIP	1.5K	5%	1/10W		R476	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R403	1-216-049-00	METAL CHIP	1K	5%	1/10W		R477	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R404	1-216-089-00	METAL CHIP	47K	5%	1/10W								
R405	1-216-049-00	METAL CHIP	1K	5%	1/10W		R478	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R406	1-216-049-00	METAL CHIP	1K	5%	1/10W		R479	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R407	1-216-049-00	METAL CHIP	1K	5%	1/10W		R480	1-216-037-00	METAL CHIP	330	5%	1/10W	
R410	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R481	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R411	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R482	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R413	1-216-025-00	METAL CHIP	100	5%	1/10W		R483	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R414	1-216-089-00	METAL CHIP	47K	5%	1/10W		R491	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R415	1-216-049-00	METAL CHIP	1K	5%	1/10W		R492	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R416	1-216-061-00	METAL CHIP	3.3K	5%	1/10W		R493	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R417	1-216-073-00	METAL CHIP	10K	5%	1/10W		R494	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R420	1-216-049-00	METAL CHIP	1K	5%	1/10W		R495	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R421	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R510	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R422	1-216-105-00	METAL CHIP	220K	5%	1/10W		R511	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R423	1-216-041-00	METAL CHIP	470	5%	1/10W		R512	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R424	1-216-105-00	METAL CHIP	220K	5%	1/10W		R513	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R425	1-216-049-00	METAL CHIP	1K	5%	1/10W		△ R514	1-249-403-11	CARBON	68	5%	1/4W	F
R426	1-216-105-00	METAL CHIP	220K	5%	1/10W		R530	1-216-025-00	METAL CHIP	100	5%	1/10W	
R427	1-216-049-00	METAL CHIP	1K	5%	1/10W		R531	1-216-025-00	METAL CHIP	100	5%	1/10W	
R428	1-216-073-00	METAL CHIP	10K	5%	1/10W		R532	1-216-025-00	METAL CHIP	100	5%	1/10W	
R429	1-216-097-00	METAL CHIP	100K	5%	1/10W		R533	1-216-025-00	METAL CHIP	100	5%	1/10W	
R430	1-216-037-00	METAL CHIP	330	5%	1/10W		R534	1-216-025-00	METAL CHIP	100	5%	1/10W	
R431	1-216-077-00	METAL CHIP	15K	5%	1/10W		R535	1-216-025-00	METAL CHIP	100	5%	1/10W	
R432	1-216-073-00	METAL CHIP	10K	5%	1/10W		R536	1-216-025-00	METAL CHIP	100	5%	1/10W	
R433	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		R537	1-216-025-00	METAL CHIP	100	5%	1/10W	
R441	1-216-049-00	METAL CHIP	1K	5%	1/10W		R542	1-216-025-00	METAL CHIP	100	5%	1/10W	
R442	1-216-081-00	METAL CHIP	22K	5%	1/10W		R560	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R443	1-216-069-00	METAL CHIP	6.8K	5%	1/10W		R561	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R444	1-216-081-00	METAL CHIP	22K	5%	1/10W		R562	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R445	1-216-105-00	METAL CHIP	220K	5%	1/10W		R563	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R451	1-216-041-00	METAL CHIP	470	5%	1/10W		△ R564	1-249-403-11	CARBON	68	5%	1/4W	F
R452	1-216-053-00	METAL CHIP	1.5K	5%	1/10W		R601	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R453	1-216-049-00	METAL CHIP	1K	5%	1/10W		R602	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R454	1-216-089-00	METAL CHIP	47K	5%	1/10W		R604	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R455	1-216-049-00	METAL CHIP	1K	5%	1/10W		R605	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R456	1-216-049-00	METAL CHIP	1K	5%	1/10W		R606	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R457	1-216-049-00	METAL CHIP	1K	5%	1/10W		R607	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R460	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R608	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R461	1-216-065-00	METAL CHIP	4.7K	5%	1/10W		R610	1-216-079-00	METAL CHIP	18K	5%	1/10W	
							R611	1-216-085-00	METAL CHIP	33K	5%	1/10W	
							R640	1-216-081-00	METAL CHIP	22K	5%	1/10W	
							R642	1-216-081-00	METAL CHIP	22K	5%	1/10W	

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PRE

REGULATOR

REGULATOR (2)

REGULATOR (3)

SW

SWITCH

Ref. No.	Part No.	Description			Remark
R643	1-216-025-00	METAL CHIP	100	5%	1/10W
R681	1-216-081-00	METAL CHIP	22K	5%	1/10W
R682	1-216-049-00	METAL CHIP	1K	5%	1/10W
R683	1-216-081-00	METAL CHIP	22K	5%	1/10W
△ R691	1-247-747-11	CARBON	470	5%	1/2W F
R692	1-216-073-00	METAL CHIP	10K	5%	1/10W
R693	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
△ R698	1-249-385-11	CARBON	2.2	5%	1/6W F
△ R699	1-249-385-11	CARBON	2.2	5%	1/6W F
< TUNER UNIT >					
TB101	1-233-666-11	ENCAPSULATED COMPONENT (FM/AM TUNER UNIT) (US, Canadian)			
TB101	1-693-351-11	TUNER (FM/AM) (AEP, UK)			
TB101	1-233-670-11	ENCAPSULATED COMPONENT (FM/AM TUNER UNIT) (E, HK, SP, MY)			
< ANTENNA TERMINAL >					
TM101	1-537-238-21	TERMINAL BOARD (ANTENNA) (EXCEPT AEP, UK)			
TM101	1-537-489-11	TERMINAL BOARD (ANTENNA) (AEP, UK)			

*	1-663-486-11	REGULATOR BOARD *****			
< CAPACITOR >					
C860	1-164-346-11	CERAMIC CHIP	1uF		16V
C863	1-124-589-11	ELECT	47uF	20%	16V
< CONNECTOR >					
* CN840	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
< DIODE >					
D861	8-719-210-33	DIODE EC10DS2			
< IC >					
IC860	8-759-390-42	IC uPC24M05AHF *****			
*	1-664-634-11	REGULATOR (2) BOARD *****			
< CAPACITOR >					
C861	1-164-346-11	CERAMIC CHIP	1uF		16V
C864	1-124-589-11	ELECT	47uF	20%	16V
< CONNECTOR >					
* CN841	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
< IC >					
IC861	8-759-390-42	IC uPC24M05AHF *****			
*	1-664-635-11	REGULATOR (3) BOARD *****			
< CAPACITOR >					
C862	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref. No.	Part No.	Description	Remark		
C865	1-124-589-11	ELECT 47uF 20% 16V			
< CONNECTOR >					
CN842	1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
< DIODE >					
D862	8-719-210-39	DIODE EC10QS-04			
< IC >					
IC862	8-759-390-42	IC uPC24M05AHF	*****		
*	1-661-774-11	SW BOARD	*****		
< CONNECTOR >					
CN601	1-770-698-11	CONNECTOR, FFC/FPC 15P			
CN602	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P			
CN603	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P			
< SWITCH >					
S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT IN)			
S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)			
S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)			
S685	1-572-467-61	SWITCH, PUSH (1 KEY) (CHUCKING IN)			
S686	1-762-621-21	SWITCH, PUSH (1 KEY) (PACK OUT)			
S687	1-572-688-11	SWITCH, PUSH (1 KEY) (PB POSITION)			
S688	1-762-621-21	SWITCH, PUSH (1 KEY) (REC POSITION)	*****		
*	1-663-485-11	SWITCH BOARD	*****		
< CAPACITOR >					
C512	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	(EXCEPT AEP, UK)		
C514	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	(AEP, UK)		
C562	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	(EXCEPT AEP, UK)		
C564	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	(AEP, UK)		
C931	1-163-038-00	CERAMIC CHIP 0.1uF 25V			
< DIODE >					
D910	8-719-057-30	LED HLMF-K205-2UL (CD SYNC)			
D911	8-719-057-30	LED HLMF-K205-2UL (●REC)			
< FERRITE BEAD >					
FB600	1-414-598-11	INDUCTOR, FERRITE BEAD			
FB601	1-414-598-11	INDUCTOR, FERRITE BEAD			
FB651	1-414-598-11	INDUCTOR, FERRITE BEAD			
< IC >					
IC910	8-759-373-49	IC NJL54H400			

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Ref. No.	Part No.	Description	Remark
< SWITCH >			
△S801	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E, HK, SP, MY)	
< POWER TRANSFORMER >			
△T800	1-429-874-11	TRANSFORMER, POWER (US, Canadian)	
△T800	1-429-876-11	TRANSFORMER, POWER (AEP, UK)	
△T800	1-429-875-11	TRANSFORMER, POWER (E, HK, SP, MY)	

MISCELLANEOUS			

7	1-777-711-11	WIRE (FLAT TYPE) (17 CORE)	
53	1-777-766-11	WIRE (FLAT TYPE) (27 CORE)	
△57	1-776-060-11	CORD, POWER (EXCEPT US, Canadian)	
△57	1-782-242-11	CORD, POWER (POLAR. SPT-1)(US, Canadian)	
58	1-777-659-11	CORD (WITH CONNECTOR)	
68	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
△71	1-569-008-11	ADAPTOR, CONVERSION 2P (E, SP, MY)	
△71	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
108	1-782-018-11	WIRE (FLAT TYPE) (19 CORE)	
110	1-782-052-11	WIRE (FLAT TYPE) (29 CORE)	
111	1-777-644-11	WIRE (FLAT TYPE) (19 CORE)	
△151	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N	
152	1-660-966-11	OP RELAY FLEXIBLE BOARD	
158	1-777-517-11	WIRE (FLAT TYPE) (15 CORE)	
△CNJ800	1-526-794-11	OUTLET, AC (AC OUTLET) (EXCEPT US, Canadian)	
△CNJ800	1-526-882-00	OUTLET, AC (AC OUTLET) (US, Canadian)	
HR901	1-500-396-11	HEAD, OVER WRITE	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
M902	A-4672-133-A	MOTOR ASSY, SLED	
M903	A-4672-134-A	MOTOR ASSY, LOADING	
△T800	1-429-874-11	TRANSFORMER, POWER (US, Canadian)	
△T800	1-429-875-11	TRANSFORMER, POWER (E, HK, SP, MY)	
△T800	1-429-876-11	TRANSFORMER, POWER (AEP, UK)	

HARDWARE LIST			

#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-870-01	SCREW +BVTT 3X5 (S)	
#3	7-685-871-01	SCREW +BVTT 3X6 (S)	
#4	7-685-852-04	SCREW +BVTT 2X5 (S)	
#5	7-685-851-04	SCREW +BVTT 2X4 (S)	
#6	7-685-850-04	SCREW +BVTT 2X3 (S)	
#7	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
#8	7-627-852-28	+P 1.7X3	
#9	7-627-552-27	SCREW, PRECISION +P 1.7X2	
#10	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	

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